NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

CONNECTING THE DOTS: HOW U.S. GLOBAL HEALTH PROGRAMS CAN IMPROVE INTERNATIONAL HEALTH REGULATION COMPLIANCE

by

Brad A. Wesley

December 2014

Thesis Advisor: Carolyn Halladay
Second Reader: Erik Dahl

Approved for public release; distribution is unlimited

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE

Form Approved OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave blank)*	**2. REPORT DATE** December 2014	**3. REPORT TYPE AND DATES COVERED** Master's Thesis

4. TITLE AND SUBTITLE
CONNECTING THE DOTS: HOW U.S. GLOBAL HEALTH PROGRAMS CAN IMPROVE INTERNATIONAL HEALTH REGULATION COMPLIANCE

5. FUNDING NUMBERS

6. AUTHOR(S) Brad A. Wesley

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Naval Postgraduate School
Monterey, CA 93943-5000

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES)
N/A

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government. IRB protocol number ____N/A____.

12a. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for public release; distribution is unlimited

12b. DISTRIBUTION CODE
A

13. ABSTRACT (maximum 200 words)

With a 2012 deadline, the majority of the World Health Organization (WHO) member states failed to achieve the legal obligations mandated under the International Health Regulations (IHR) of 2005. This lack of compliance coincides with the increased recognition of the threats posed by pandemics and infectious diseases. As the largest contributor of foreign global health assistance, the United States can serve an instrumental role in supporting global IHR compliance.

This thesis analyzes, by U.S. government agency, which current global health programs and efforts align to the core capacities WHO member states are required to develop per the IHR. The agencies analyzed are the United States Agency for International Development, the U.S. Department of Defense, and the Centers for Disease Control and Prevention. As indicated in this thesis, all three agencies have cross-cutting efforts to assist WHO member states; however, four key programs align greatly to specific IHR core capacities. Moving forward, decision makers can utilize these key U.S. global health programs to address WHO member states' core capacity deficiencies in surveillance, response, laboratory, and human resources. Finally, recommendations are given to address IHR monitoring and reporting, as well as gaps in critical core capacities and U.S. global health programs.

14. SUBJECT TERMS International Health Regulations, World Health Organization, global health programs, disease surveillance, infectious disease, global health security, medical, public health

15. NUMBER OF PAGES
127

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	**18. SECURITY CLASSIFICATION OF THIS PAGE**	**19. SECURITY CLASSIFICATION OF ABSTRACT**	**20. LIMITATION OF ABSTRACT**
Unclassified	Unclassified	Unclassified	UU

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. 239-18

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release;distribution is unlimited

CONNECTING THE DOTS: HOW U.S. GLOBAL HEALTH PROGRAMS CAN IMPROVE INTERNATIONAL HEALTH REGULATION COMPLIANCE

Brad A. Wesley
Captain, United States Army
B.S., University of Utah, 2005

Submitted in partial fulfillment of the
requirements for the degree of

**MASTER OF ARTS IN SECURITY STUDIES
(HOMELAND SECURITY AND DEFENSE)**

from the

**NAVAL POSTGRADUATE SCHOOL
December 2014**

Author: Brad A. Wesley

Approved by: Carolyn Halladay
Thesis Advisor

Erik Dahl
Second Reader

Mohammed Hafez
Chair, Department of National Security Affairs

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

With a 2012 deadline, the majority of the World Health Organization (WHO) member states failed to achieve the legal obligations mandated under the International Health Regulations (IHR) of 2005. This lack of compliance coincides with the increased recognition of the threats posed by pandemics and infectious diseases. As the largest contributor of foreign global health assistance, the United States can serve an instrumental role in supporting global IHR compliance.

This thesis analyzes, by U.S. government agency, which current global health programs and efforts align to the core capacities WHO member states are required to develop per the IHR. The agencies analyzed are the United States Agency for International Development, the U.S. Department of Defense, and the Centers for Disease Control and Prevention. As indicated in this thesis, all three agencies have cross-cutting efforts to assist WHO member states; however, four key programs align greatly to specific IHR core capacities. Moving forward, decision makers can utilize these key U.S. global health programs to address WHO member states' core capacity deficiencies in surveillance, response, laboratory, and human resources. Finally, recommendations are given to address IHR monitoring and reporting, as well as gaps in critical core capacities and U.S. global health programs.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

LIST OF FIGURES

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF TABLES

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF ACRONYMS AND ABBREVIATIONS

AFHSC	Armed Forces Health Surveillance Center
CBEP	Cooperative Biological Engagement Program
CCMD	Combatant Command
CDC	Centers for Disease Control and Prevention
COCOM	Combatant Command Authority
CTR	Cooperative Threat Reduction
DHAPP	Defense HIV/AIDS Prevention Program
DOD	Department of Defense
DOS	Department of State
FAO	Food and Agriculture Organization of the United Nations
FETP	Field Epidemiology Training Program
GEIS	Global Emerging Infections Surveillance and Response System
GDDER	Global Disease Detection and Emergency Response
GHI	Global Health Initiative
HIDN	Office of Health, Infectious Diseases, and Nutrition
HHS	Health and Human Services
IHR	International Health Regulations
JCS	Joint Chiefs of Staff
MHRP	Military HIV Research Program
NFP	National IHR Focal Point
OHA	Office of HIV/AIDS
OHS	Office of Health Systems
PEPFAR	President's Emergency Plan for AIDS Relief
PHEIC	Public Health Emergency of International Concern
PRH	Office of Population and Reproductive Health
PIOET	Pandemic Influenza and Other Emerging Threats
USAID	United States Agency for International Development
WHO	World Health Organization

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

First and foremost, I would like to thank my wife, Megan, who supported my decision to go back to school and provided ample support throughout the thesis process. To my son, Emerson, thanks for providing the relief at the end of every day with some good playtime, a nice laugh, and some good stories before bedtime. To my daughter, Madeline, who was born during the final writing of this thesis, you were always the light at the end of the process. Of course, my parents help shaped my future and success, for which I'm eternally grateful.

Several individuals at NPS made this thesis possible. To Dr. Halladay, my advisor, thank you for the in depth editing and common sense comments during review. Likewise, Dr. Erik Dahl, thank you for always providing a quick turnaround on comments and steering me in the right direction. Also, as an academic institution the NPS provided outstanding education, as well as provided all the necessary tools to succeed. The professionalism at NPS was unparalleled.

THIS PAGE INTENTIONALLY LEFT BLANK

I. INTRODUCTION

> Since 15 June 2007, the world has been implementing the International Health Regulations (IHR)(2005). This legally binding agreement significantly contributes to global public health security by providing a new framework for the coordination of the management of events that may constitute a public health emergency of international concern, and will improve the capacity of all countries to detect, assess, notify and respond to public health threats.[1]

A. MAKING A CASE

Following the death of 932 individuals and the increasing Ebola outbreak in West Africa, on August 8, 2014, the World Health Organization (WHO) declared a Public Health Emergency of International Concern (PHEIC).[2] To date, only three PHEIC have ever been issued, which includes the 2013–2014 Ebola outbreak. As a mechanism of the International Health Regulations (IHR), the PHEIC exists to warn other states of an international public health risk and to enable a coordinated international response.[3] As evident with PHEIC notification, the West African nations of Liberia, Sierra Leone, and Guinea lack the appropriate resources and infrastructure to address the threat from Ebola: a virulent disease with a nearly 90 percent rate of fatality, which results from internal and external bleeding.[4]

All three of the afflicted countries failed to meet the 15 June 2012 deadline to attain the minimum core capacity requirements mandated by IHR.[5] They have also failed

---

[1] World Health Organization, "About IHR," Alert, Response, and Capacity Building Under the International Health Regulations (IHR), accessed August 19, 2014, http://www.who.int/ihr/about/en/.

[2] World Health Organization, "WHO Statement on the Meeting of the International Health Regulations Emergency Committee Regarding the 2014 Ebola Outbreak in West Africa," August 8, 2014, http://www.who.int/mediacentre/news/statements/2014/ebola-20140808/en/.

[3] World Health Organization, "IHR Procedures Concerning Public Health Emergencies of International Concern (PHEIC)," Alert, Response, and Capacity Building Under the International Health Regulations (IHR), accessed August 18, 2014, http://www.who.int/ihr/procedures/pheic/en/.

[4] World Health Organization, "Ebola Virus Disease," Fact Sheet N°103, Media Centre, last modified April 2014, http://www.who.int/mediacentre/factsheets/fs103/en/.

[5] Regional Committee for Africa, "Implementation of International Health Regulations (2005) in the African Region," Document AFR/RC62/12, World Health Organization, November 21, 2012, http://www.afro.who.int/index.php?option=com_docman&task=doc_download&gid=8188&Itemid=2593.

even to monitor IHR compliance standards.[6] This internal state failure threatens the greater global health security and the 2013–2014 Ebola outbreak demonstrates this fact. Furthermore, the outbreak has impacted the international community militarily and economically. For example, fear of the spreading the disease delayed the rotation of African Union peacekeeping forces to Somalia. In addition, Lebanon suspended the work visas of individuals from Ebola-stricken countries, and airliners have canceled flights emanating from the region. The initial response plan from WHO will cost $100 million from the international community.[7] Recognizing no borders, infectious diseases pose a global health and national security threat.

The IHR, a legally binding international agreement to prevent and respond to the spread of disease, presents the only legally mandated international approach toward mitigating this threat. While the United States contributes greatly to a set of global health programs, the preponderance of WHO member states are failing to meet their obligations under IHR. This thesis provides an analysis of the U.S. global health programs by agency to identify which current programs can best assist WHO member states meet the minimum IHR core capacities.

B. UNDERSTANDING THE THREAT

According to the National Intelligence Council, infectious diseases pose a direct threat to the U.S. civilian population and U.S. military force readiness, and it can adversely affect national interests abroad.[8] Infectious diseases still contribute to approximately a quarter of all deaths worldwide, and the potential threat is increasing due to an increase in travel and trade, climate change, and population growth.[9] While deaths

[6] World Health Organization [WHO], "International Health Regulations (2005) Monitoring Framework: All Capacities Data by Country," Global Health Observatory Data Repository, accessed August 3, 2014, http://apps.who.int/gho/data/node.main.IHR00ALLN?lang=en.

[7] Adam Nossiter and Alan Cowell, "Ebola Virus Is Outpacing Efforts to Control It, World Health Body Warns," *New York Times*, August 1, 2014, http://www.nytimes.com/2014/08/02/world/africa/african-leaders-and-who-intensify-effort-to-combat-ebola-virus.html?module=Search&mabReward=relbias%3Ar.

[8] U.S. National Intelligence Council, *Strategic Implications of Global Health*, ICA 2008-10D, Intelligence Community Assessment, December 2008, 12, http://www.state.gov/documents/organization/113592.pdf.

[9] Gary Cecchine and Melinda Moore, *Infectious Disease and National Security: Strategic Information Needs* (Santa Monica, CA: Rand Corporation, 2006), 5.

attributable to infectious disease within the United States have decreased in the decade from 2000 to 2010, an average of one new infectious disease still emerges in the world each year, and the potential for severe or widespread problems, even within the United States, is immeasurable.[10] These emerging infectious disease (EID) outbreaks range from the West Nile virus, the Middle East respiratory syndrome (MERS), severe acute respiratory syndrome (SARS), to most recently, Ebola.[11]

In 2003, SARS cost an estimated $30 billion–$100 billion in economic losses alone, while the entire budget of the WHO was roughly $2.2 billion the same year.[12] New threats like antibacterial-resistant infections have resulted in at least 23,000 deaths with a cost of $55 billion in the United States annually.[13] Furthermore, incidents like the 2001 anthrax attack have highlighted the threat of bioterrorism and the requirement for detection and early response.

C. UNDERSTANDING THE IHR

Following this rising international health threat, the WHO member states revised the IHR to expand on the international mechanisms for disease surveillance. Currently, the IHR provides the only legally mandated international approach to mitigating the threat of epidemic, infectious disease, or other health-related catastrophe.[14] The revised regulations went into effect on 15 June 2007 and required all 194 member states to have or to develop minimum core public health capacities for disease surveillance by 2012.[15]

---

[10] Ibid., 7.

[11] World Health Organization, "United States of America," Global Alert and Response (GAR), accessed May 27, 2014, http://www.who.int/csr/don/archive/country/usa/en/.

[12] "The U.S. Government & Global Emerging Infectious Disease Preparedness and Response," The Henry J. Kaiser Family Foundation, last modified October 22, 2014, http://kff.org/global-health-policy/fact-sheet/the-u-s-government-global-emerging-infectious-disease-preparedness-and-response/; World Health Organization, *Programme Budget 2002–2003: Performance Assessment Report*, PBPA/2003–2003 Coor. 1, April 4, 2005, http://apps.who.int/gb/archive/pdf_files/PBPA_0203/PBPA2002-2003_Corr1-en.pdf.

[13] Centers for Disease Control and Prevention, *Antibiotic Resistance Threats in the United States, 2013* (Atlanta, GA: Centers for Disease Control and Prevention, 2013), 5, 11, http://www.cdc.gov/drugresistance/threat-report-2013/pdf/ar-threats-2013-508.pdf.

[14] World Health Organization, *International Health Regulations (2005)*, 2nd ed. (Geneva: WHO Press, 2008), 1, http://whqlibdoc.who.int/publications/2008/9789241580410_eng.pdf?ua=1.

[15] Ibid.

Each core capacity contains multiple components necessary to achieve compliance, to include a varying degree of capability for each component. There are a total of eight IHR core capacities:

- National Legislation, Policy, and Financing
- Preparedness
- Coordination and National Focal Point (NFP) Communication
- Risk communication
- Surveillance
- Human Resources
- Response
- Laboratory Services[16]

In addition, there are four IHR potential hazards areas that must be measured and in compliance: zoonotic events, food safety, chemical events, and radiation emergencies. Finally, WHO member states must meet a set of general obligations at points of entry (POE) that address the IHR core capacities and potential hazards.[17] While progress has been made, by 2012 most member states had still not met the minimum requirements. A total of 118 member states requested and received a two-year extension to try and meet the core capacity requirements by 2014. This total equates to 60 percent of all member states failing to reach the minimum requirements for compliance.[18]

D. UNDERSTANDING THE PROBLEM

The 2010 *National Security Strategy* highlights global surveillance as a critical component of combating pandemics and infectious disease.[19] This document also lists the

---

[16] Department of Global Capacities Alert and Response, *Activity Report 2012* (Geneva: World Health Organization, 2013), 4, http://www.who.int/ihr/publications/activity_report_2012/en/.

[17] World Health Organization, "IHR Core Capacity Monitoring Framework: Checklist and Indicators for Monitoring Progress in the Development of IHR Core Capacities in States Parties," *International Health Regulations (2005)* (Geneva: WHO Press, April 2013), 12, 15, http://apps.who.int/iris/bitstream/10665/84933/1/WHO_HSE_GCR_2013.2_eng.pdf.

[18] WHO, "International Health Regulations (2005) Monitoring Framework: All Capacities Data by Country."

[19] White House, *National Security Strategy* (Washington DC: Government Printing Office, 2010), 39, http://nssarchive.us/NSSR/2010.pdf.

activities needed to increase global surveillance that include enhancing international collaboration, strengthening multilateral institutions, and relying on U.S. overseas laboratories in order to improve global surveillance and early warning capabilities. Unfortunately, global disease surveillance—which should help identify potential health-related threats—contains many gaps, leaving national security decision makers without important information. This surveillance gap emanates from the poor health infrastructure in other countries, which depends upon international efforts for its improvement. When WHO member states achieve the IHR guidelines, the overall global network of disease surveillance is improved.

The United States supports WHO member states in meeting the IHR both directly and indirectly through global health programs. Congressional appropriations for global health programs have grown from $1.7 billion in FY2001 to $8.5 billion in FY2013.[20] Several federal government stakeholders are involved with the global health programs: the Centers for Disease Control and Prevention (CDC), Department of State (DOS), Defense Department (DOD), and the United States Agency for International Development (USAID). These programs range from providing AIDS relief to operating global disease detection centers. Most notably, the CDC and DOD are the agencies directly involved with international capacity-building efforts for disease surveillance: through the CDC's global disease detection and emergency response activities and the DOD's Global Emerging Infections Surveillance Response System (GEIS).

No country directly contributes more to the WHO than the United States.[21] Thus, while it is hard to argue that the United States should be doing more financially to assist the WHO, the current programs can be scrutinized for their policy and practical effectiveness. Currently, several issues exist with the global health programs, and more specifically, how these programs assist the WHO member states in meeting the IHR guidelines. U.S. global health programs have "overemphasized defensive medical

[20] Tiaji Salaam-Blyther, *U.S. Global Health Assistance: Background and Issues for the 113th Congress*, R43115 (Washington, DC: Congressional Research Service, 2013), 1.

[21] U.S. Government Accountability Office, *World Health Organization: Reform Agenda Developed, but U.S. Actions to Monitor Progress Could be Enhanced*, GAO-12-722, 2012, 1, http://www.gao.gov/products/GAO-12-722.

countermeasures and treatment while underinvesting in prevention, strengthening of public health systems, and the surveillance and response capacities of developing countries."[22] These issues can be attributed to several factors: budget allocation, intra- and interagency coordination, strategic guidance, parallel programs, and constraints within the WHO member states.

Moreover, the outcomes of global health programs can be difficult to both quantify and qualify. Assistance in capacity building within countries can skew data, as health conditions may appear worse due to better surveillance and reporting mechanisms, which results in the appearance of an increase in disease populations. Also, there may be inadequate data sets to evaluate progress, since there were no preexisting data. Some programs, such as the CDC's Global Disease Detection and Emergency Response (GDDER) program, explicitly work to build host country capacity to meet the IHR guidelines; however, many of the other global health programs are disease-specific programs.

While global disease surveillance has increasingly been tied to U.S. national security, few global health programs directly support core surveillance programs. In FY2008, only one-percent of all global health program expenditures were directed at core programs to build international capacity for disease surveillance and response.[23] Disease-specific programs identify surveillance and capacity building only as a single activity among many to prevent and control a specified disease.[24] Therefore, a key difficulty lies in trying to ascertain if disease-specific programs effectively help countries in meeting the IHR guidelines. Perhaps more importantly, how can we identify which global health programs directly align to building IHR core capacities?

The monitoring and evaluation of global health programs remains paramount to determining effectiveness. An important evaluation method would be to determine in

---

[22] Harley Feldbaum, *U.S. Global Health and Security Policy* (Washington, DC: Center for Strategic and International Studies, 2009), 2, http://csis.org/files/media/csis/pubs/090420_feldbaum_usglobalhealth.pdf.

[23] William J. Long, *Pandemic and Peace: Public Health Cooperation in Zones of Conflict* (Washington, DC: United States Institute of Peace, 2011), 86.

[24] Ibid.

what countries U.S. global health efforts are located, and have those WHO member states improved or achieved IHR core capability compliance. Also, are global health programs directed to the locations with the greatest capability gaps and at most risk for emerging infectious disease and pandemics?

E. RESEARCH QUESTION

With the assumption that WHO member states' adherence to the IHR presents the most viable means of global disease surveillance and global health security, the main question guiding the present thesis research is: How can U.S. global health programs assist WHO member states meet the guidelines set forth by the IHR? The related aspects to this question include: What is the current policy for U.S. global health programs? Which global health programs currently build on WHO member state IHR core capacities? How can researchers or policymakers understand the efficacy of these programs?

F. LITERATURE REVIEW

The literature review is broken down into three sections: U.S. global health policy and strategy, U.S. global health program challenges and issues, as well as WHO member states IHR compliance failures. Review of literature in these areas helped shape the thesis by gaining a greater understanding of the critiques of U.S. policy and programs and why WHO member state fail. The common theme of criticism asserts that the global health policy and programs:

- lack an overarching structure or strategy
- involve multiple agencies with parallel efforts
- are appropriated in a manner to address single diseases or issues
- are charity based, as opposed to investment based
- do not build capacity, nor are sustainable

As a result of the literature review, this thesis will take an alternate approach to instead highlight how to identify and leverage existing U.S. global health programs to support IHR compliance with partner states.

1. U.S. Global Health Policy and Strategy

A review of the current U.S. policy and strategy provides a greater understanding of how global health programs relate and assist the IHR guidelines. The policy can be analyzed from the executive and legislative branches, as well as the agencies that carry out the policy. These agencies include the HHS, USAID, and DOD.

The executive branch lays out the global health policy in the 2010 *National Security Strategy* and the *Presidential Policy Directive on Global Development*.[25] The presidential policy directive aligns development with national security and labels "development as a core pillar of American power."[26] In terms of health the policy directive relies upon the administration's global health initiative (GHI) that seeks to improve specific health principles such as expanding disease treatment and improving maternal child health.[27] The health principles are aimed at meeting health outcomes that range from supporting more than 6 million people in HIV/AIDS treatment to reducing maternal mortality by 30 percent.[28]

The *National Security Strategy* also identifies the need to pursue a global health strategy as a moral and strategic need, and one that will be accomplished through the GHI. It lists countering biological threats and pandemics and infectious disease as separate items from the pursuit of a global health strategy. With regards to all three challenges the security strategy highlights the need to work with others and to strengthen multinational institutions for the achievement of security.[29] For pandemics and infectious disease global surveillance depends on "U.S. overseas laboratories, relationships with host nation governments, and the willingness of states to share health data with nongovernmental and international organizations."[30]

---

[25] White House, *National Security Strategy*; White House, *Presidential Policy Directive-6: US Global Development Policy*, 2010, https://fas.org/irp/offdocs/ppd/ppd-6.pdf.

[26] White House, *Presidential Policy Directive-6.*

[27] Ibid.

[28] U.S. Department of State, *The U.S. Global Health Initiative: Saving Lives and Promoting Security*, May 30, 2012, http://www.state.gov/documents/organization/191821.pdf.

[29] White House, *National Security Strategy*, 24, 39, 49.

[30] Ibid, 49.

Government agencies have nested their global health strategy to the executive branch's policy, such as the Department of Health and Human Services (HSS), who oversee the CDC among other HHS agencies. The HHS has developed a "Global Health Strategy" that sets forth a mission to create "a healthier and safer world."[31] This mission has three goals and 10 supporting objectives.[32] Of these objectives, three list capacity-building efforts to support the IHR: enhance global health surveillance, prevent infectious diseases and other health threats, and prepare for and respond to public health emergencies.[33]

The USAID also released the *Global Health Strategic Framework* that provides a mission statement to support "partner countries in preventing and managing major health challenges of poor, underserved, and vulnerable people, leading to improved health outcome."[34] Rajiv Shah, the USAID Administrator, provides an introduction in the strategic framework that states, "To accelerate progress in global health, we need to build country-led health systems instead of donor-driven disease control programs."[35] The document emphasizes the means to achieve the mission by conducting bilateral and regional field missions, coordinating with host countries, and providing in-country donor coordination to focus on six core health priorities. These core principles align with the GHI set forth by *Presidential Policy Directive for Global Development*, as well as the UN Millennium Development Goals (MDG).[36]

The DOD has no overarching policy or strategy to guide global health activities, as stated from a report prepared by the Henry J. Kaiser Family Foundation. Furthermore, global health efforts are not delegated or centralized to any single entity within DOD,

---

[31] U.S. Department of Health and Human Services, *The Global Health Strategy of the US Department of Health and Human Service* (Washington, DC: Office of Global Affairs, 2011), 13, http://www.globalhealth.gov/pdfs/Global%20Health%20Strategy.pdf.

[32] Ibid.

[33] Ibid., 25–29.

[34] United States Agency for International Development [USAID], *USAID Global Health Strategic Framework: Better Health for Development, FY2012–FY2016* (Washington, DC: USAID, 2012), 14, http://www.usaid.gov/sites/default/files/documents/1864/gh_framework2012.pdf.

[35] Ibid., i.

[36] Ibid., 12, 16, 24.

instead multiple components within the DOD carryout these efforts. [37] The document consolidates a total of 67 policy and guidance documents that relate to DOD global health-related activities.[38] These DOD policy and guidance documents lead to three focus areas for global health efforts: force health protection and readiness, medical stability operations and partnership engagement, and threat reduction.[39]

A Congressional Research Service report prepared by Nina Serafino provides a similar conclusion with regards to the DOD global health policies.[40] She states that it is unclear which office has direct leadership over DOD global health policies, and there is no coordinating policy for the DOD programs. While some organizations within DOD have created their own policy, this has not led to an institutionalized policy.[41]

The Henry J. Kaiser Family Foundation maps out the evolution of the U.S. global health policy in an analysis of the stated vision, goals, and the supporting programs. Through the evolution of policy, global health programs have been supported by the executive branch for reasons of national security, soft power influence, and humanitarian assistance. The authors for the foundation argue that there is no single overarching global health strategy or centralized hierarchal structure to execute the strategy. Instead, global health programs are generated on an ad hoc basis and carried out by the existing government bureaucracies. Many of these bureaucracies are primarily domestic agencies that are increasingly, due to the threat, becoming involved within the international community. With the rapid increase in global health spending in the last decade and the

---

[37] Josh Michaud, Kellie Moss, and Jen Kates, *U.S. Global Health Policy: The U.S. Department of Defense and Global Health* (Menlo Park, CA: The Henry Kaiser Family Foundation, 2012), 26, http://kaiserfamilyfoundation.files.wordpress.com/2013/01/8358.pdf.

[38] Ibid., 27.

[39] Ibid., 21-22

[40] Nina M. Serafino, *The Department of Defense Role in Foreign Assistance: Background, Major Issues, and Options for Congress*, RL34639, Congressional Research Service, 2008, 42, http://www.fas.org/sgp/crs/natsec/RL34639.pdf.

[41] Ibid.

decentralized nature of global health programs, U.S. agencies have consistently gone through reorganizations to adapt to single initiatives and funds allocation.[42]

Henry Feldbaum, an author for the Center for Strategic and International Studies, echoes the sentiment shared with the Kaiser Foundation. He states, "There is at present no overall U.S. global health strategy, nor is there a coherent governmental organizational structure for managing U.S. investments in global health or responding to transnational health threats."[43] Feldbaum also argues that global health programs have inherently been tied to national security. National security concerns raised the profile for selective issues such as HIV/AIDS and avian flu. This security emphasis causes only selective issues to get both the policymakers' interest and support, while the underlying prevention and response system is neglected.[44]

2. U.S. Global Health Program Challenges and Issues

Tiaji Salaam-Blyther, a specialist in global health for the Congressional Research Service, outlines the issues regarding U.S. global health assistance for the 113th Congress. She highlights that the lack of a single appropriations bill for global health programs creates a barrier in accurately labeling global health activities. Such issues as water and sanitation development could be categorized as global health activities; therefore, conflicting data exists about the true extent of assistance.[45] Also, multiple appropriation bills create duplicative health programs that are implemented by separate agencies. The alternative would be specified U.S. agencies or departments having responsibility for lines of effort.[46] Salaam-Blyther states that due to the program-emphasized nature of funding, critics contend that health programs can run against the health efforts of host countries, thereby hampering country ownership.[47] Multiple other challenges are arising

---

[42] Julie E. Fischer, Eric Lief, Vidal Seegobin, and Jen Kates, *U.S. Global Health Policy: Mapping the United States Government Engagement in Global Public Health* (Menlo Park, CA: The Henry J. Kaiser Family Foundation, 2009), 7–9, 17.

[43] Feldbaum, *U.S. Global Health and Security Policy*, 12.

[44] Ibid., 11.

[45] Salaam-Blyther, *U.S. Global Health Assistance*, 3–4.

[46] Ibid., 17.

[47] Ibid., 18.

as well. The rise of private donors funding requires an increase in program coordination to negate program overlap and to maintain country ownership as a strategy.[48] In 2011, the Bill and Melinda Gates Foundation spent more on global health assistance than any other country except the United States.[49] Developing countries are also increasingly seeing a rise in non-communicable disease deaths, which could change the dynamics of global health.[50]

Laurie Garret, an author for *Foreign Affairs*, argues that the challenges in global health emanate from donor programs that deviate from the local health infrastructure.[51] Current programs are narrow in scope to a particular disease—known as stovepiping—so that the programs reflect the interests of the donor, not the recipient.[52] These stovepiped programs are largely uncoordinated with paralleling efforts, which lead to inefficiencies in human and financial resources. Large influxes of money can create adverse outcomes by stripping away local health care workers from the general health care system.[53] As an example, Garrett highlights that in Haiti the prevalence of HIV dropped from six to three-percent from 2002 to 2006, yet all other measures of health dropped during the same period.[54] Also, she points out that aid is not matched to the resources available: the funding of treatment within a country may outstrip the actual resources available.[55] Garrett maintains that global health programs should seek sustainability for the day when outside donations cease and the local health infrastructure must operate on local resources. Furthermore, aid should focus on building in-country capacity to handle the myriad of health related problems.[56]

---

[48] Ibid., 17.

[49] Ibid.

[50] Ibid., 14.

[51] Laurie Garrett, "The Challenge of Global Health," *Foreign Affairs* 86, no. 1 (2007): 38, http://www.jstor.org/stable/20032209.

[52] Ibid., 22–23.

[53] Ibid., 34.

[54] Ibid., 23.

[55] Ibid., 38.

[56] Ibid.

In his book, *Pandemics and Peace,* William Long argues that U.S. health programs do not go far enough "to adequately engage the threat of infectious disease outbreaks…and to seize the potential opportunity for enduring international collaborations in public health."[57] Instead, he argues similar to the other critiques that the programs fund the treatment of a few specific diseases, as opposed to strengthening the overall health systems. He argues the goal for funding should be in investment and not charity.[58] This fund misallocation arises due to the difficulty in demonstrating the quantifiable effects of capacity-building. Also, capacity-building takes time and the budget cycle makes it difficult to support long-term investments.[59] Long also argues that U.S. funding mirrors the approach of the donor community, which focuses on near-term problems instead of sustainable solutions.[60] Within government policy, Long believes policy may be changing. He gives the Obama administration credit for the GHI that will focus on transitioning from a program of emergency response to one emphasizing sustainable country programs.[61]

InterAction, an alliance of nongovernmental organizations (NGOs), provides a briefing book for members of Congress. In the publication for the 113th Congress, *Global Health: Investing in Our Future*, the organization provides a series of recommendations for health system strengthening with regards to U.S. global health programs. It states that in 2009, the U.S. government included capacity-building as a core principle of the GHI with a six-year, $63 billion commitment.[62] With this monetary commitment, the organization recommends Congress to maintain capacity-building within all future health related legislation. Congress should also encourage USAID to work toward a comprehensive strategy that articulates goals and desired outcomes, while defining and applying clear metrics to assess the impact of U.S. programs. The organization advocates

[57] Long, *Pandemic and Peace*, 97.

[58] Ibid.

[59] Ibid.,102.

[60] Ibid., 97.

[61] Ibid., 103

[62] InterAction, *Global Health: Investing in Our Future* (Washington, DC: InterAction, 2013), 59, http://www.globalhealth.org/wp-content/uploads/GlobalHealthBriefingBook_FINAL_web.pdf.

that the executive administration puts emphasis on the local populations buy-in for the direction of its health improving activities.[63]

3. WHO Member States IHR Compliance Failure

Most countries have not met IHR implementation, although gradual progress has been made. As of 2013, approximately 80 percent of WHO member states had still not met the criteria for the IHR.[64] The IHR monitoring framework assesses the core capacities annually based on a checklist of 20 global indicators.[65] While the revision of the IHR protocols by the member states of the World Health Assembly was ambitious, the modest implementation, thus far, is indicative of the poor health infrastructure in most countries.

The authors Julie Fischer and Rebecca Katz admit that the shortfalls in IHR implementation are reflective of the task and not the lack of commitment from the health community.[66] Furthermore, the economic climate has made it difficult for donors and developing states to invest in these core capacities. The authors argue that article 44 of the IHR "calls on state parties to provide technical cooperation and logistical support to facilitate implementation and to mobilize financial resources for capacity building," yet no standing fund or technical assistance mechanize has been created.[67] Most funding by donors has been provided by security funds, mostly by the DOD, and these funds are typically less sustainable.[68] Ultimately, Fischer and Katz argue that IHR capacity-building must become integrated into the health policy and strategy of "governments and their development partners."[69]

---

[63] Ibid., 59-61.

[64] Julie E. Fischer and Rebecca Katz, "Moving Forward to 2014: Global IHR (2005) Implementation," *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 11, no. 2 (2013): 153–156, doi:10.1089/bsp.2013.0030.

[65] World Health Organization [WHO], *Summary of 2011 States Parties Report on IHR Core Capacity Implementation* (Geneva: WHO Press, 2012), 4, http://www.who.int/ihr/publications/WHO_HSE_GCR_2012.10_eng.pdf.

[66] Fischer and Katz, "Moving Forward to 2014," 153.

[67] Ibid., 154.

[68] Ibid., 156.

[69] Ibid.

Wilson, Brownstein, and Fidler provide a similar argument regarding the lack of a coordinated and funded global health initiative for IHR capacity-building assistance.[70] They also suggest that the IHR core capacities may distort national public health priorities by forcing countries to divert resources to meet the legally mandated regulation.[71] Additionally, rising controversies emanating from possible IHR violations undermine the way forward in relying upon the IHR as the means to detect, assess, report, and respond to health threats. These possible violations include the withholding of biological samples and unnecessary travel and trade restrictions.[72]

In 2010, a series of workshops were held in Washington, DC, and Geneva to discuss lessons learned and recommendations that help build core disease surveillance capacity under the IHR.[73] Based on the highlights from the meeting, a few common themes emerged. The success of implementation depends upon direct support from the political level, not just the health sector. Also, it depends upon communication across intragovernmental agencies, in which, many states struggle. The more specific challenges were mentioned, as well. While states have been successful in building capacities at the national level, many lack progress at the local level. The lack of appropriate human resources continues to hamper gains, but regional training centers can improve the number of personnel trained. Also, cross-collaboration and intergovernmental cooperation is needed at multiple levels, since no single institution or country has all the necessary capacities and it maximizes resource investment.[74]

The 2011 WHO summary of core capacity implementation provides insight on the areas most deficient within the international community, as well as regional differences. Globally, the area most deficient was human resources with only 44 percent of member

---

[70] Kumanan Wilson, John S. Brownstein, and David P. Fidler, "Strengthening the International Health Regulations: Lessons from the H1N1 Pandemic," *Health and Policy Planning* 25, no. 6 (2010): 506, doi:10.1093/heapol/czq026.

[71] Ibid.

[72] Ibid., 507.

[73] Rebecca L. Katz, Jose A. Fernandez, and Scott J.N. Mcnabb, "Disease Surveillance, Capacity Building and Implementation of the International Health Regulations (IHR[2005])," *BMC Public Health* 10, suppl. 1 (2010): S1, doi:10.1186/1471-2458-10-S1-S1.

[74] Ibid.

states meeting the minimum requirement.[75] As a region, Africa consistently ranked at the bottom for all core capacities.[76] The WHO report also summarizes the responses of member states in terms of the areas that they require support.[77] As an example, one request is that all diagnostic laboratories be "certified or accredited to international standards or to national standards adapted from international standards."[78] Another requests help in assessing gaps in workforce resources and training.[79]

G. THESIS ORGANIZATION

This thesis provides a comparative analysis of the U.S. global health programs by their implementing agencies: USAID, DOD, and HHS/CDC. For each implementing agency, the analysis will focus on whether or not its global health activities relate to or support the IHR core capacities, as well as identifying the supporting policy. More importantly, the analysis will examine which core capacity each global health activity aligns.

The sources required for this level of comparison and analysis will greatly rely on government and international organization documents on the global health programs. This comparative analysis may have some specific limitations. Many health programs have multiple implementing agencies—for example, the president's emergency plan for AIDS relief (PEPFAR). In these cases, the specific activities of each agency will be examined. Some health programs are funded by agencies other than the executor; in these situations the program will correspond to the executing agent. Also, while the inputs may be easy to calculate, the outputs may be difficult both to quantify and to qualify. It may be hard to defer an actual outcome of a program, but perhaps this will highlight the need for more oversight or metrics for success. Another limitation is that the alignment of a health activity to a core capacity may appear to be subjective. The thesis will attempt to highlight the research or subjective limitations.

---

[75] WHO, *Summary of 2011 States Parties Report*, 8.

[76] Ibid, 9.

[77] Ibid., 61–62.

[78] Ibid., 62.

[79] Ibid.

The chapters of this thesis are broken down by governmental agency. Chapter II examines the work of the USAID global health programs and measure each health activity's measure of performance based on the methodology previously mentioned. Chapter III takes a similar approach to Chapter II, while examining the CDC global health programs, most notably from the Center of Global Health. Chapter IV examines the work of DOD and analyzes its contributions to the IHR core capacities. Finally, Chapter V provides a summary of the findings from the comparative analysis and draws a conclusion on how the U.S. can best assist partner countries meet IHR compliance. In addition, Chapter V will identify the gaps in the research, avenues for further research, and policy implications.

THIS PAGE INTENTIONALLY LEFT BLANK

II. USAID GLOBAL HEALTH PROGRAMS

Founded in 1961, USAID remains committed to improving global health. Congress controls the means of foreign assistance through direct budget appropriations for specified health technical areas. USAID implements these health efforts through the Bureau of Global Health. The stated mission for the global health mission is to support "partner countries in preventing and managing major health challenges of poor, underserved, and vulnerable people, leading to improved health outcomes."[80] Activities aligned to promote disease surveillance, or that parallel IHR core capacities, are diminutive compared to other global health developmental goals.

A. BACKGROUND

The focus and methods employed by USAID have changed over the decades. In the first decade of its existence, the organization worked to improve sanitation, eradicate smallpox, and implement measles control through direct loans and grants.[81] The eradication of smallpox by the 1980s demonstrated the efficacy of global health measures and served as an example for other disease vaccination programs.[82] In the 1970s, USAID sought to increase development through meeting the basic needs of the poor in four functional areas: primary health care, water and sanitation, disease control programs, and health planning. Congress also passed the Foreign Assistance Act of 1973, which gave Congress greater control and oversight over foreign assistance.[83] By the 1980s, USAID launched the Demographic and Health Surveys program that provides the gold standard for country-specific health related data.[84] Other initiatives of the decade included the

[80] USAID, *USAID Global Health Strategic Framework*, 3.

[81] Tonya Himelfarb, *50 Years of Global Health: Saving Lives and Building Futures*, *United States Agency for International Development* (Washington, DC: United States Agency for International Development, 2014), 20-21, http://www.usaid.gov/sites/default/files/documents/1864/USAID_50-Years-of-Global-Health.pdf.

[82] Ibid., 23.

[83] Ibid., 26—7.

[84] Ibid., 59.

Child Survival Initiative, the Polio Eradication Initiative, and the HIV/AIDS program following the emergence of the epidemic in 1981.[85]

In the 1990s, USAID began to leverage NGOs and the private sector amid budget cuts, which led to a 30 percent reduction of foreign- and civil-service employees.[86] New and reemerging threats still loomed such as a resurgence of malaria, the identification antimicrobial-resistant microorganisms, and tuberculosis. With the terrorists' events of September 11, 2001, a new paradigm of defense, diplomacy, and development emerged. USAID became heavily engaged in Iraq and Afghanistan, while the new pandemic influenza and other emerging threats (PIOET) program launched in 2005 addressed the rising health security concerns of possible pandemics.

Such other programs as PEPFAR, the Global Fund, and the president's Malaria initiative began during the decade, which further aligned funds against specified diseases by Congress. PEPFAR became the greatest investment in history by a single donor to combat a single disease.[87] The greater focus on particular diseases may be a result of the 2000 *National Intelligence Estimate: The Global Infectious Disease Threat and Its Implications for the United States,* which addressed possible security concerns arising from the effects of disease in the developing world.[88] By the 2000s, there was also a greater interdependence occurring among U.S. agencies, NGOs, and international organizations to carryout programs and initiatives with partner countries. In 2002, USAID established the Bureau for Global Health (GH) signifying the significant increase in health efforts within developmental aid.

With a change of presidential administrations, President Obama announced the GHI in 2009. The GHI contains health targets associated with the already existent USAID funded programs; however, the initiative calls for interagency teams to build

---

[85] Ibid., 49.

[86] Ibid., 62.

[87] Ibid., 74.

[88] U.S. National Intelligence Council, *National Intelligence Estimate: The Global Infectious Disease Threat and Its Implications for the United States*, NIE 99-17D (Washington, DC: U.S. National Intelligence Council, 2000), 5, http://www.dni.gov/files/documents/infectiousdiseases_2000.pdf.

country strategies in conjunction with host country national health plans.[89] Moving forward, USAID provided a global health strategic framework for FY2012–2016 that sought to incorporate the USAID policy, UN Millennium Development Goals, and GHI with program implementation.[90] The strategy purports five priorities: "saving mothers and children, fostering an AIDS-free generation, combating infectious diseases, increasing the availability and use of voluntary family planning, and strengthening health systems."[91] The prioritization of combating infectious diseases most aligns with the IHR core capacities.

B. ORGANIZATION

Figure 1 provides the organizational chart for USAID's GH.

[89] U.S. Department of State, *The U.S. Global Health Initiative.*

[90] USAID, *USAID Global Health Strategic Framework*, 12–13, 26.

[91] Ibid., 3.

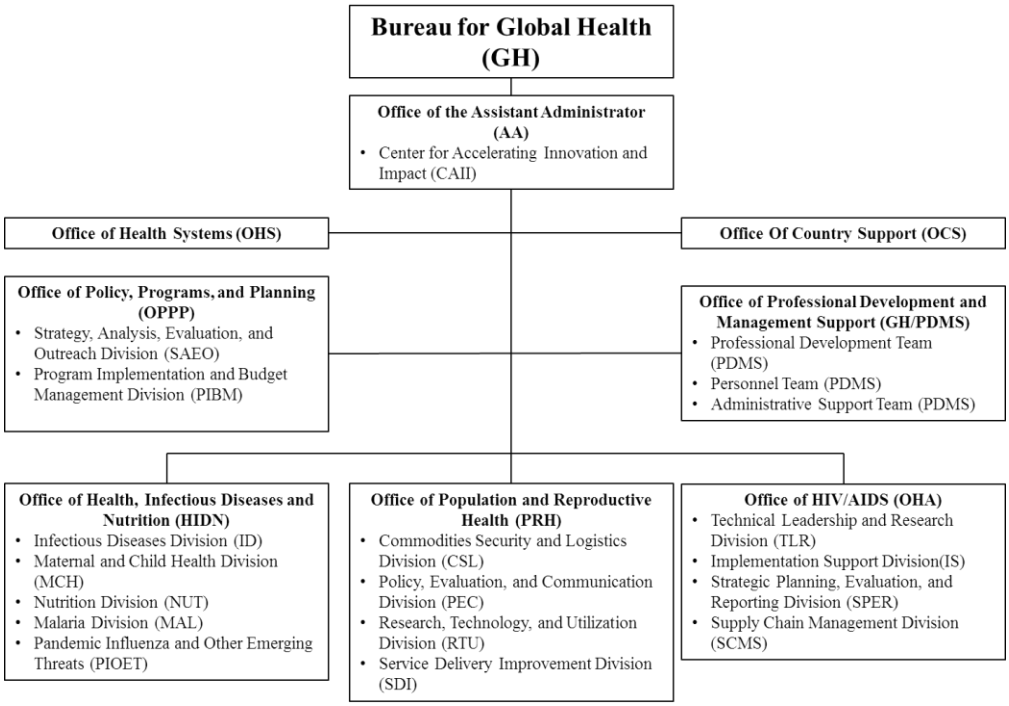

Figure 1. USAID: Global Health Organizational Chart[92]

The GH within USAID manages health projects, provides "technical support to USAID missions and field programs," and works with the broader international community to advance USAID and partner countries' priorities and initiatives.[93] The Office of the Assistant Administrator (AA) provides oversight over the seven other offices under the GH. Three of these offices serve as technical offices: Office of Health, Infectious Diseases and Nutrition (HIDN), Office of Population and Reproductive Health (PRH), and Office of HIV/AIDS (OHA). The other offices under AA serve as support.[94]

The technical offices provide technical and programmatic direction and leadership, as well as support field programs within their corresponding technical area.[95]

---

[92] United States Agency for International Development [USAID], *Users Guide to USAID/Washington Health Programs, FY2014* (Washington, DC: United States Agency for International Development, 2014), 2–6, http://transition.usaid.gov/our_work/global_health/home/Resources/users_guide.html.

[93] USAID, *Users Guide to USAID*, 2.

[94] Ibid., 2–6.

[95] Barbara O'Hanlon, *USAID's Funding Decisions on Reproductive Health and Family Planning* (Washington, DC: O'Hanlon Health Consulting LLC., 2009), 14, http://www.hewlett.org/uploads/files/USAID_FPRH_Funding_Decisions_-_OHanlon_April_2009.pdf.

While each office is involved in the budget process, all requests must go through various budget submissions and justifications: bureau program and budget submission, agency budget submission, joint USAID-State budget, president's budget, congressional budget justification, and the 653(a) report of the Foreign Assistance Act.[96] The PRH and OHA support global health activities that directly correspond to a congressional supported global health program. For example, PRH directly aligns with Family Planning and Reproductive Health Global Health Program; however, the HIDN overseas multiple divisions with various global health budgets approved by Congress (see Figure 1 and Table 1).

GLOBAL HEALTH PROGRAMS ($ in thousands)	FY 2009 Enacted	FY 2010 Enacted	FY 2011 Enacted	FY 2012 Estimate
TOTAL	4,967,732	5,956,204	5,545,288	2,625,000
Saving Mothers and Children	1,347,500	1,677,600	1,799,400	1,892,000
Maternal and Child Health	440,000	474,000	548,900	605,550
Malaria	382,500	585,000	618,760	650,000
Nutrition	55,000	75,000	89,820	95,000
Family Planning and Reproductive Health	455,000	528,600	526,950	523,950
Social Services (Vulnerable Children)	15,000	15,000	14,970	17,500
Creating an AIDS-Free Generation	3,287,732	3,787,604	3,396,588	350,000
HIV/AIDS (of which: GHCS-USAID)	450,000	350,000	349,300	350,000
HIV/AIDS (of which: GHCS-STATE)	2,837,732	3,437,604	3,047,288	N/A
Fighting Other Infectious Diseases	332,500	491,000	349,300	383,000
Tuberculosis	162,500	225,000	224,550	236,000
Pandemic Influenza/Other Emerging Threats	140,000	201,000	47,904	58,000
Neglected Tropical Diseases	30,000	65,000	76,846	89,000

Table 1. USAID Global Health Program Funding[97]

C. METHODOLOGY FOR ANALYSIS

Through a review of the FY2014 USAID health project listings by office, each project will be evaluated based on its relationship to an IHR core capacity. Each IHR core capacity contains key components that must be met for compliance: the WHO's *IHR Core Capacity Monitoring Framework: Checklist and Indicators for Monitoring Progress in the Development of IHR Core Capacities in States Parties* provides the recommended checklist for these key components.[98] While most USAID programs do not

[96] Ibid., 22–23.

[97] USAID, *USAID Global Health Strategic Framework*, 13.

[98] WHO, "IHR Core Capacity Monitoring Framework," 26–55.

purport to assure IHR compliance, an analysis of each project within each global health technical program and division can reveal cross-cutting efforts to exploit. Figure 2 provides a visual of the analysis that reveals these cross-cutting efforts.

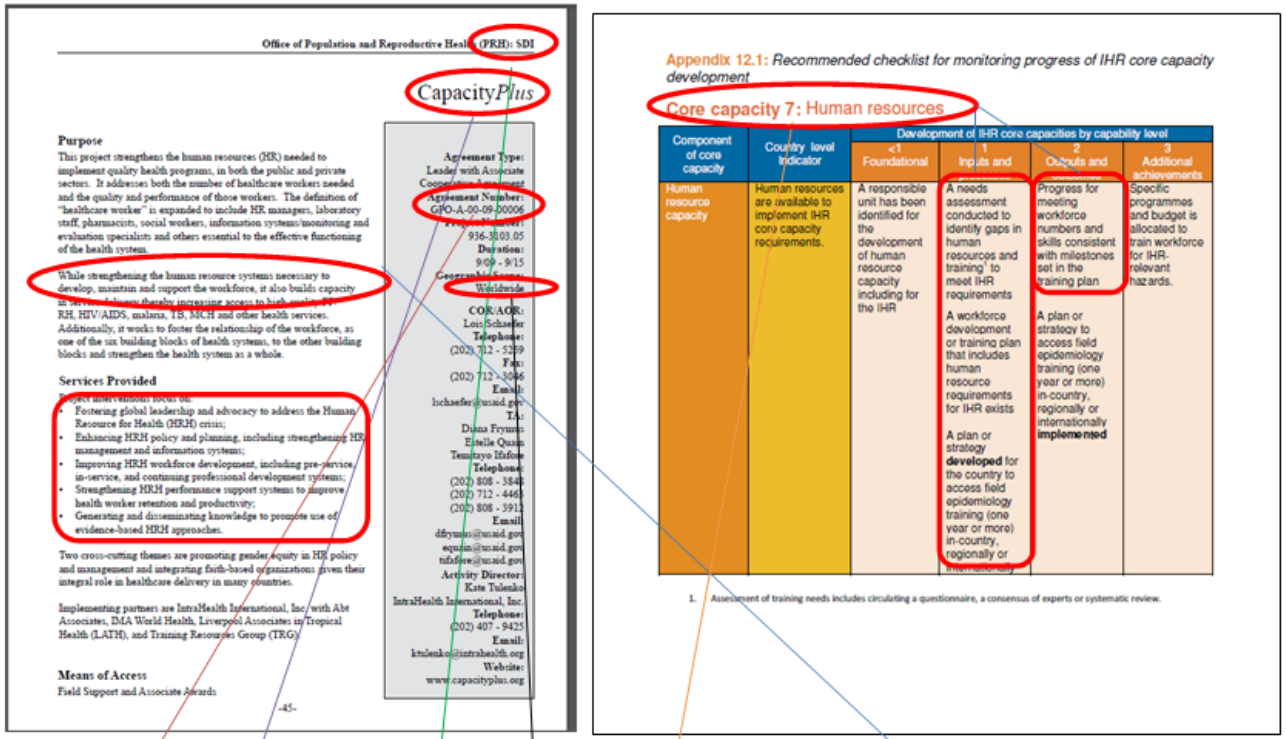

Figure 2. Methodology for Analysis Example[99]

[99] USAID, *Users Guide to USAID*, 45; WHO, "IHR Core Capacity Monitoring Framework," 39.

D. LIMITATIONS

A review of all FY2014 USAID global health projects was conducted. From the review, a comprehensive list was organized for which projects relate or build upon IHR core capacities; however, the analysis was centered off the narrative provided by each project listing. This narrative may differ from actual actions taking place during project implementation. Furthermore, projects that provided funding and support to large international organizations were generally omitted, as the narratives were too flexible in scope to categorize core capacities to be impacted: examples include the International Federation of Red Cross and Red Crescent Societies (IFRC) umbrella grant and the UN Children's Fund MCH umbrella grant.

E. PROGRAMS, FUNDING, AND ANALYSIS

As an agency, USAID's spending decreased when evaluated as a percentage of GDP from 1962 to 2012. In 1962, the budget for USAID was $4.5 billion with a national GDP of $605.1 billion, amounting to expenditures of .7 percent of GDP. In 2012, USAID's budget was $14.6 billion with a national GDP of $16.244 trillion, an expenditure of only .09 percent of GDP.[100] Conversely, health expenditures have become the greatest sector of spending for USAID, contributing to 31.2 percent of all spending in FY2012.[101] Based on the FY2014 budget request, global health programs are aligned under three lines of effort that support the GHI: saving lives of mothers and children, creating an AIDS-free generation, and protecting communities from other infectious diseases.[102]

---

[100] Himelfarb, *50 Years of Global Health*, 12; U.S. Bureau of Economic Analysis, "Table 1.1.5. Gross Domestic Product," U.S. Department of Commerce, accessed July 24, 2014, http://bea.gov/iTable/iTable.cfm?ReqID=9&step=1#reqid=9&step=1&isuri=1.

[101] "U.S. Agency for International Development," Foreign Assistance by Agency, last modified June 30, 2014, http://www.foreignassistance.gov/web/AgencyLanding.aspx.

[102] U.S. Department of State, *Executive Budget Summary: Function 150 and Other International Programs, Fiscal Year 2014* (Washington, DC: Government Printing Office, 2013), 70–76, http://www.usaid.gov/sites/default/files/documents/1868/207305.pdf.

1. Saving Lives of Mothers and Children

The health programs that support efforts to end preventable child and maternal deaths constitute the greatest proportion of spending by USAID. The programs amount to a total of $1,992 million of requested budget for FY2014, while the remainder of the USAID budget amounts to $653 million.[103] With estimated three-quarters of all child and maternal deaths preventable, the USAID's goal is to "reduce maternal mortality by 30 percent" and "under-five child mortality by 35 percent across assisted countries."[104] Seemingly, maternal and child health would have little overlap with IHR, however, opportunities exist for a cross-cutting approach to achieve both USAID's objectives and support IHR compliance.

A total of five global health programs exist that support the global health strategic priority for saving lives of mothers and children (see Table 1): maternal and child health, malaria, family planning and reproductive health, nutrition, and vulnerable children. Table 1 provides the budget for each supporting activity. An analysis of USAID global health programs, seen in Table 2, reveals that family planning and reproductive health, maternal child health, and malaria global health activities can assist with the development of IHR core capacities. These programs operate under the organizational control of PRH and HIDN. No cross-cutting areas could be identified with the global health programs and budget for nutrition and vulnerable children.

[103] Ibid.

[104] Ibid., 71; USAID, *USAID Global Health Strategic Framework*, 13.

Agreement Number	Agreement Title	Office/Division	Location	Related IHR Core Capacity	Related IHR Core Capacity	Related IHR Core Capacity	Related Goals and Objectives
AAG-G-00-97-00019	Health and Emergency Response Support: (WHO: Polio, Immunizations, CS, ID)	HIDN/MCH	Worldwide	Surveillance	Preparedness		*Improve disease surveillance *Support logistical planning at the district and national level
GPO-A-00-09-00006	CapacityPlus	PRH/SDI	Worldwide	Human Resources			*Strengthen "the human resource systems necessary to develop, maintain and support the workforce"
Multiple	Transform	PRH/PEC	Worldwide	Risk Communication			*Strengthen the quality of existing health communication activities through creative communication campaigns
OAA-A-10-00067	Health Policy Project	PRH/PEC	Worldwide	Human Resources	National Legislation		*Strengthen partner country undergraduate, graduate, and professional development programs *Strengthen "in-country capacity for policy and governance, financing, leadership"
OAA-A-12-00031	Health and Immunization Response Support	HIDN/MCH	Worldwide	Response	Surveillance	Risk Communication	*Training for emergency outbreak response *Support community detection and reporting strategies *Information campaigns, community mobilization
OAA-A-12-00058	Health Communication Capacity Collaborative	PRH/PEC	Worldwide	Risk Communication	Human resources		*Strengthen "in-country capacity to implement state-of-the-art health communication"
OAA-A-12-00057	MalariaCare	HIDN/MAL	Worldwide	Response	Laboratory		*"Strengthen lab capacity for malaria and other infectious diseases" *Increase capacity for case management of malaria and other childhood diseases
OAA-TO-11-00012	DELIVER Malaria Task Order 7	HIDN/MAL	Worldwide	Response	Preparedness		*Strengthen in-country supply systems and increase the capacity for case management
OAA-TO-10-00064	DELIVER Project (Deliver II) Task Order 4	PRH/CSL	Worldwide	Preparedness			*"Improve and strengthen in-country supply chains...to ensure that in-country supply chains are able to meet the basic health commodity requirements of public health programs"

Table 2. Saving Lives of Mothers and Children Global Health Project: Analysis[105]

[105] USAID, *Users Guide to USAID*, 21, 22, 24, 29, 45, 107-08, 117, 119; WHO, "IHR Core Capacity Monitoring Framework," 26–55.

2. Creating an AIDS-free Generation

USAID efforts in creating an AIDS-free generation mainly go in support of the larger PEPFAR program. PEPFAR is the largest single-disease effort undertaken by a nation, and the largest source of funding emanates from the global health programs. The funds from the global health programs are divided between DOS and USAID activities. USAID contributions to HIV/AIDS are set to equal $330 million in FY2014.[106] In supporting PEPFAR, USAID hopes to "support the prevention of more than 12 million new HIV infections, provide direct support to more than six million people on treatment, and support care for more than 12 million people, including five million orphans and children."[107]

An analysis of USAID projects under OHA reveal only two projects with an ability to support IHR core capacities (see Table 3). The U.S. Census Bureau participating agency program agreement aligns with the IHR core capacity for surveillance by increasing "surveillance data on epidemic prone and priority diseases," as well as "baseline estimates, trends, and thresholds for alert and action."[108] The partner countries would have to leverage the data and technical knowledge gained through the program to increase or meet IHR compliance. Supply chain management increases preparedness by enabling partner countries to "plan for management and distribution of national stockpiles," and to build surge capacity to respond to a host of public health crises.[109]

[106] U.S. Department of State, *Executive Budget Summary*, 73–75.

[107] USAID, *USAID Global Health Strategic Framework*, 13.

[108] WHO, "IHR Core Capacity Monitoring Framework," 30.

[109] Ibid., 36.

Agreement Number	Agreement Title	Office/Division	Location	Related IHR Core Capacity	Related Goals and Objectives
GHA-T-00-08-00002	U.S. Census Bureau Participating Agency Program Agreement	OHA/SPER	Worldwide	Surveillance	*Build, model, advise, and provide technical support for HIV/AIDS Surveillance Data Base
GPO-I-03-05-00032	Supply Chain Management System	OHA/SCH	Worldwide	Preparedness	*"Promote sustainable supply chains in partner countries"

Table 3. Creating an AIDS-free Generation Global Health Project: Analysis[110]

3. Protecting Communities from Other Infectious Diseases

USAID combats infectious disease largely through three programs, which each have their lines of funding: tuberculosis, neglected tropical diseases, and the PIOET program.[111] The total funding allotted to combating infectious diseases amounts to $323 million for FY2014. This amounts to 12 percent of the USAID global health budget.[112] These programs all operate under the HIDN and support the health targets set forth by the President Obama administration's GHI:

- Contribute to the treatment of a minimum of 2.6 million new sputum smear-positive tuberculosis cases and 57,200 multidrug-resistant cases of TB.
- Contribute to a 50 percent reduction in TB deaths and disease burden relative to the 1990 baseline.
- Reduce the prevalence of seven neglected tropical diseases, contributing to the global elimination of lymphatic filariasis, blinding trachoma, leprosy, and onchocerciasis in Latin America.[113]

Reasonably, USAID's effort to combat infectious diseases would most parallel the functions and goals of the IHR. Analysis of the USAID projects reveals this to be evident. Out of the projects that combat infectious disease, the PIOET program contains

[110] USAID, *Users Guide to USAID*, 58-59.; WHO, "IHR Core Capacity Monitoring Framework," 26-55.

[111] U.S. Department of State, *Executive Budget Summary*, 75-76.

[112] "Budget Tracker: Status of U.S. FY14 Funding for Key Global Health Related Accounts," The Henry J. Kaiser Foundation, last modified February 28, 2014, http://kaiserfamilyfoundation.files.wordpress.com/2014/03/8045_fy2014.pdf.

[113] USAID, *USAID Global Health Strategic Framework*, 13.

half of the projects that support or could support IHR core capacities. Efforts to combat tuberculosis amount to a third of the projects under HIDN (see Table 4). Each PIOET program project generally contains more related IHR core capacities; for example, for example, the Identify and Predict projects together relate to nine core capacities and IHR hazard.

Agreement Number	Agreement Title	Office/Division	Location	Related IHR Core Capacity	Related IHR Core Capacity	Related IHR Core Capacity	Related IHR Core Capacity	Related IHR Core Capacity	Related Goals and Objectives
AAG-P-00-01-00001	International Broadcasting Bureau/ Voice of America	HIDN	Worldwide	Risk Communication					*Support public health reporting and programming
GHA-G-00-09-00003	IDENTIFY	HIDN/PIOET	Worldwide	Response	Laboratory	Risk Communication	Preparedness	IHR Hazard: Zoonotic Events	*Support outbreak response *Improve laboratory security and safety *Increase information collaboration between animal and human public health systems *Increase pandemic preparedness
GHN-A-00-09-00002	PREVENT	HIDN/PIOET	Worldwide	Risk Communication					*Enhance public communication at the national level *Increase awareness
GHN-A-00-09-00010	PREDICT	HIDN/PIOET	Worldwide	Surveillance	Preparedness	NFP Communications and Coordination	IHR Hazard: Zoonotic Events		*Develop risk models for zoonotic diseases *"Establish a global early warning system for zoonotic disease" *Increase information and knowledge of surveillance activities
GHN-A-00-09-00015	RESPOND	HIDN/PIOET	Worldwide	Human Resources					*Strengthen human capacity through training programs and institution collaboration
GHN-I-01-09-0006	TB Task Order 2015	HIDN	Worldwide	Surveillance	Laboratory	Response	Risk Communication		*Strengthen laboratory networks and diagnostic tools *Enhance "advocacy, communication, and social mobilization" *Support TB detection and control
GHN-T-00-06-00001	CDC Interagency Agreement II	HIDN	Worldwide	NFP Communications and Coordination	National Legislation				*Provide technical and program support to develop global, regional, and country programs with regards to infectious diseases *Assist with policy and planning for health programs
Multiple	Tuberculosis Indefinite Quantity Contract	HIDN	Worldwide	Surveillance	Laboratory	Response	Risk Communication		*Increase TB control strategies
OAA-A-10-00020	TB Care - I	HIDN/ID	Worldwide	Surveillance	Laboratory	Response	Risk Communication		*Improve laboratory capacity *Strengthen TB control strategy
OAA-A-10-00021	TB Care - II	HIDN/ID	Worldwide	Surveillance	Laboratory	Response	Risk Communication		*Improve laboratory capacity *Strengthen TB control strategy
OAA-TO-11-00015	DELIVER - Emerging Pandemic Threats Task Order 6	HIDN/PIOET	Worldwide	Laboratory	Preparedness				*Build laboratory capacity *Build logistic capacity and commodity security

Table 4. Infectious Disease Global Health Project: Analysis[114]

[114] USAID, *Users Guide to USAID*, 93, 99–100, 102–3, 133–9; WHO, "IHR Core Capacity Monitoring Framework," 26–55.

4. Other USAID Efforts

The USAID global health projects listed in Table 5 are managed by OHS, a support office under GH, and the Africa Bureau. Most of the global health projects managed by the Africa Bureau still align to one of the lines of effort organized under GH: save the lives of mothers and children, create AIDS-free generation, and combat infectious disease. The projects under OHS leverage the office's focus on strengthening health systems and improving health outcomes.[115] When analyzed in relation to the IHR core capacities, these USAID efforts include at least one activity in all eight core capacities (see Table 5).

[115] USAID, *Users Guide to USAID*, 2.

Agreement Number	Agreement Title	Bureau/Office/Division	Location	Related IHR Core Capacity	Related IHR Core Capacity	Related IHR Core Capacity	Related Goals and Objectives
690-0020	Human Resources Alliance for Africa	Africa	Southern Location	Human Resources			*Faciliate and assist with HR policy and planning
674-A-00-10-00060-00	Building Local Capacity for Delivery of HIV Services in Southern Africa	Africa	Southern Africa	Preparedness			*Strengthen delivery of health services by regional health facilities
AFR-G-00-07-00003	WHO/Africa Regional Office: Support for the Eradication of Polio	Africa	Sub-Saharan Africa	Surveillance	Laboratory	Risk Communication	*Improve laboratory performance *Support surveillance efforts *Support communication and social mobilization efforts
AFR-G-00-10-00002	WHO/Africa Regional Office: Support for Disease Control and Reproductive Health in Africa	Africa	Sub-Saharan Africa	Response			*Through Inter-country Support Teams, "provide rapid responses to countries in epidemic and emergency"
GHA-A-00-08-00003	MEASURE Evaluation Phase III	Bureau wide	Worldwide	NFP Communications and Coordination			*Increase the communication and coordination within the health sector
OAA-A-11-00021	Systems for Improved Access to Pharmaceuticals and Services	OHS	Worldwide	Preparedness			*Strengthen supply chains and the pharmaceutical services
OAA-A-12-00080	Health Finance and Governance Project	OHS	Worldwide	National Legislation			*Provide assistance to improve finance and governance systems within the health sector
OAA-C-13-00095	The Demographic and Health Surveys Program	Bureau-wide	Worldwide	Surveillance			*Provide assistance for health surveys *Increase capacity for data collection and analysis

Table 5. USAID Global Health Projects Under Bureaus or Offices Other than HIDN, OHA, and PRH: Analysis.[116]

[116] USAID, *Users Guide to USAID*, 14–15, 143, 145, 154–55, 157-58; WHO, "IHR Core Capacity Monitoring Framework," 26–55.

F. HOW TO USE THE DATA

The analysis conducted between ongoing USAID projects and the IHR core capacities is not a critique USAID's mission or goals, but instead a way to identify or leverage the supplemental benefits of USAID's projects and global health programs. Table 6 provides a consolidated list of these projects. The analysis also reveals the projects with relevancy to IHR, as well as the divisions operating under GH that can assist with IHR compliance.

Agreement Number	Agreement Title	Bureau/Office	Location	Related IHR Core Capacity	Related IHR Core Capacity	Related IHR Core Capacity	Related IHR Core Capacity
AAG-G-00-97-00019	Health and Emergency Response Support: (WHO: Polio, Immunizations, CS, ID)	HIDN/MCH	Worldwide	Surveillance	Preparedness		
GPO-A-00-09-00006	CapacityPlus	PRH/SDI	Worldwide	Human Resources			
Multiple	Transform	PRH/PEC	Worldwide	Risk Communication			
OAA-A-10-00067	Health Policy Project	PRH/PEC	Worldwide	Human Resources	National Legislation		
OAA-A-12-00031	Health and Immunization Response Support	HIDN/MCH	Worldwide	Response	Surveillance	Risk Communication	
OAA-A-12-00058	Health Communication Capacity Collaborative	PRH/PEC	Worldwide	Risk Communication	Human resources		
OAA-A-12-00057	MalariaCare	HIDN/MAL	Worldwide	Response	Laboratory		
OAA-TO-11-00012	DELIVER Malaria Task Order 7	HIDN/MAL	Worldwide	Response	Preparedness		
OAA-TO-10-00064	DELIVER Project (Deliver II) Task Order 4	PRH/CSL	Worldwide	Preparedness			
GHA-T-00-08-00002	U.S. Census Bureau Participating Agency Program Agreement	OHA/SPER	Worldwide	Surveillance			
GPO-I-03-05-00032	Supply Chain Management System	OHA/SCH	Worldwide	Preparedness			
AAG-P-00-01-00001	International Broadcasting Bureau/ Voice of America	HIDN	Worldwide	Risk Communication			
GHA-G-00-09-00003	IDENTIFY (Aligns w/ IHR Hazard: Zoonotic Events)	HIDN/PIOET	Worldwide	Response	Laboratory	Risk Communication	Preparedness
GHN-A-00-09-00002	PREVENT	HIDN/PIOET	Worldwide	Risk Communication			
GHN-A-00-09-00010	PREDICT (Aligns w/ IHR Hazard: Zoonotic Events)	HIDN/PIOET	Worldwide	Surveillance	Preparedness	NFP Communications and Coordination	
GHN-A-00-09-00015	RESPOND	HIDN/PIOET	Worldwide	Human Resources			
GHN-I-01-09-0006	TB Task Order 2015	HIDN	Worldwide	Surveillance	Laboratory	Response	Risk Communication
GHN-T-00-06-00001	CDC Interagency Agreement II	HIDN	Worldwide	NFP Communications and Coordination	National Legislation		
Multiple	Tuberculosis Indefinite Quantity Contract	HIDN	Worldwide	Surveillance	Laboratory	Response	Risk Communication
OAA-A-10-00020	TB Care - I	HIDN/ID	Worldwide	Surveillance	Laboratory	Response	Risk Communication
OAA-A-10-00021	TB Care - II	HIDN/ID	Worldwide	Surveillance	Laboratory	Response	Risk Communication
OAA-TO-11-00015	DELIVER - Emerging Pandemic Threats Task Order 6	HIDN/PIOET	Worldwide	Laboratory	Preparedness		
690-0020	Human Resources Alliance for Africa	Africa	Southern Location	Human Resources			
674-A-00-10-00060-00	Building Local Capacity for Delivery of HIV Services in Southern Africa	Africa	Southern Africa	Preparedness			
AFR-G-00-07-00003	WHO/Africa Regional Office: Support for the Eradication of Polio	Africa	Sub-Saharan Africa	Surveillance	Laboratory	Risk Communication	
AFR-G-00-10-00002	WHO/Africa Regional Office: Support for Disease Control and Reproductive Health in Africa	Africa	Sub-Saharan Africa	Response			
GHA-A-00-08-00003	MEASURE Evaluation Phase III	Bureau wide	Worldwide	NFP Communications and Coordination			
OAA-A-11-00021	Systems for Improved Access to Pharmaceuticals and Services	OHS	Worldwide	Preparedness			
OAA-A-12-00080	Health Finance and Governance Project	OHS	Worldwide	National Legislation			
OAA-C-13-00095	The Demographic and Health Surveys Program	Bureau-wide	Worldwide	Surveillance			

Table 6. USAID Project Listing with IHR Compatibility[117]

USAID can also use IHR compliance to identify critical weaknesses or strengths in partnering countries. As part of the GHI, individual country strategies should be built to increase compliance of the IHR and leverage preexisting projects that could increase

[117] USAID, *Users Guide to USAID*, 10-162; WHO, "IHR Core Capacity Monitoring Framework," 26-55.

deficient core capacities. Aid assistance could also be a stipulation for IHR compliance monitoring, as a total of eight countries receiving USAID global health aid have not reported compliance attribute scores to WHO in 2013.[118]

Further analysis as seen in Table 7 demonstrates a positive relationship between USAID aid and average IHR attribute score in Africa. In terms of IHR reporting in Africa, 29.7 percent of countries have provided no data for IHR compliance. Excluding the non-reporting countries, USAID global health aid recipients in Africa average a core capacity attribute score of 60.76 percent in IHR compliance, while countries that receive no USAID global health aid average only 47.53 percent.[119] These numbers do not prove causation, but could provide an impetus to measure progress based upon international standards to prevent, protect against, control and provide a public health response to the international spread of disease.

[118] WHO, "International Health Regulations (2005) Monitoring Framework: All Capacities Data by Country;" U.S. Department of State, *Executive Budget Summary*, 154–55.

[119] WHO, "International Health Regulations (2005) Monitoring Framework: All Capacities Data by Country."

Region	Country	IHR 2013 Core-Capacity Compliance Average	USAID FY2014 GHP Country Budget ($ in thousands)	
Africa	Algeria	47.11111111		
Africa	Angola	48.55555556	38,700	
Africa	Benin	No Data	23,500	
Africa	Botswana	36.55555556		
Africa	Burkina Faso	63.33333333	9,000	
Africa	Burundi	45.11111111	16,500	
Africa	Cabo Verde	No Data		
Africa	Cameroon	89.66666667	1,500	
Africa	Central African Republic	22.22222222		
Africa	Chad	36.66666667		
Africa	Comoros	31.11111111		
Africa	Congo	28.55555556		
Africa	C?te d'Ivoire	88.66666667		
Africa	Democratic Republic of the Congo	64	122,700	
Africa	Equatorial Guinea	36		
Africa	Eritrea	66.22222222		
Africa	Ethiopia	No Data	135,900	
Africa	Gabon	No Data		
Africa	Gambia	58.88888889		
Africa	Ghana	65.11111111	61,500	
Africa	Guinea	No Data	15,500	
Africa	Guinea-Bissau	No Data		
Africa	Kenya	70.55555556	81,400	
Africa	Lesotho	68.22222222	6,400	
Africa	Liberia	No Data	30,700	
Africa	Madagascar	32.55555556	49,000	
Africa	Malawi	No Data	72,400	
Africa	Mali	No Data	56,850	
Africa	Mauritania	No Data		
Africa	Mauritius	53		
Africa	Mozambique	60.11111111	68,100	
Africa	Nambia	No Data		
Africa	Niger	67.55555556		
Africa	Nigeria	47.55555556	169,200	
Africa	Rwanda	41.33333333	43,000	
Africa	Sao Tome and Principe	20.44444444		
Africa	Sengal	No Data	55,400	
Africa	Seychelles	52.55555556		
Africa	Sierra Leon	No Data		
Africa	South Africa	72.44444444	10,000	
Africa	South Sudan	62.44444444	35,510	
Africa	Swaziland	44	6,900	
Africa	Togo	55.88888889		
Africa	Uganda	76.66666667	86,100	IHR non-reporting state that receives USAID GH-aid
Africa	United Republic of Tanzania	50.22222222	97,135	IHR non-reporting state that receives no USAID GH-aid
Africa	Zambia	91.77777778	56,875	IHR reporting state that receives no USAID GH-aid
Africa	Zimbabwe	No Data	40,500	IHR reporting state that receives USAID GH-aid

Table 7. Africa Region IHR Compliance and USAID Aid[120]

120 WHO, "International Health Regulations (2005) Monitoring Framework: All Capacities Data by Country;" U.S. Department of State, Executive Budget Summary, 154-55.

III. DOD GLOBAL HEALTH PROGRAMS

As U.S. military personnel are deployed in over 160 countries and have the possibility to be deployed in many more, the DOD has an interest in global health efforts.[121] These global health efforts increase the force health protection for U.S. military personnel, so that they may operate in areas with endemic diseases. The global health efforts also can have ancillary health benefits to the populations for where U.S. forces are stationed and can add to the wealth of knowledge on particular diseases. Furthermore, the expanding role of stability operations for the U.S. military has increased the number of medical engagements with partnering states. These activities can build goodwill, as well as provide stability to local governance. As evident with the analysis of DOD global health programs in this chapter, the programs can serve to increase IHR compliance globally.

A. BACKGROUND

DOD has a vested interest in combating infectious diseases. During times of war, infectious diseases have been known to devastate the fighting strength of militaries and their supporting populations.[122] Thucydides, a general and historian of the Peloponnesian Wars, warned of the dangers and impact of disease. He recounted a plague that decimated as much as 25 percent of Athens' population and altered the course of the Peloponnesian Wars.[123] From this realization, the U.S. military has always encompassed health services within the organization, which dates back to formation of the Continental Army in 1775.[124] One of the first recorded instances of force health protection includes George

[121] Kellie Moss and Josh Michaud, *The U.S. Department of Defense and Global Health: Infectious Disease Efforts* (Menlo Park, CA: The Henry J. Kaiser Family Foundation, 2013), 1, http://kaiserfamilyfoundation.files.wordpress.com/2013/10/8504-the-u-s-department-of-defense-and-global-health-infectious-disease-efforts.pdf.

[122] Matthew Smallman-Raynor and Andrew Cliff, *War Epidemics: An Historical Geography of Infectious Diseases in Military Conflict and Civilian Strife, 1850–2000* (Oxford: Oxford University Press, 2004), 4.

[123] Robert J. Littman, "The Plague of Athens: Epidemiology and Paleopathology," *The Mount Sinai Journal of Medicine* 76, no. 5 (2009): 456, doi: 10.1002/msj.20137.

[124] "The U.S. Army Medical Department Regiment History," U.S. Army Medical Department, last modified March 5, 2013, http://ameddregiment.amedd.army.mil/about/history.html.

Washington ordering "the inoculation of all Continental Army recruits" against smallpox in 1777.[125] Nevertheless, infectious disease still "caused greater morbidity and mortality than battle injuries" for many conflicts in U.S. history.[126]

Most recently, global health concerns have been increasingly tied to U.S. national security as a result of infectious disease outbreaks: HIV/AIDS outbreak in the 1980s, the H1N1 outbreak in 2009, and the West Africa Ebola outbreak at the time of this writing. Not only does this threat directly affect the American public, but it can destabilize other states and lead to regional insecurity. From these factors the DOD has a motivation to prevent or mitigate the effects of infectious disease globally.[127] Also, the DOD has a primary role in U.S. efforts to combat biological weapons largely through non-proliferation, counter-proliferation, and consequence management efforts.[128]

B. ORGANIZATION

There is no single organization in DOD with authority over its global health programs or activities, primarily because DOD is not a development agency and global health efforts are disperse and serve as a supporting activity.[129] (The DOD mission "is to provide the military forces needed to deter war and to protect the security of our country."[130]) All health activities carried out by the DOD relate to the mission statement; yet, overlap exists where activities support the overall DOD mission and WHO member states' compliance with IHR.

The organizational structure of the DOD, under the Secretary of Defense, can be broken down into four key components. These components include the Office of the

---

[125] "AMEDD History," U.S. Army Medical Department, last modified August 16, 2012, http://ameddregiment.amedd.army.mil/about/ameddhistory.html.

[126] Moss and Michaud, *The U.S. Department of Defense and Global Health*, 1.

[127] Michaud, Moss, and Kates, *U.S. Global Health Policy*, 7.

[128] "Who We Are," Defense Threat Reduction Agency & USSTRATCOM Center for Combating WMD & Standing Joint Force Headquarters – Elimination, accessed September 3, 2014, http://www.dtra.mil/about/WhoWeAre.aspx.

[129] Michaud, Moss, and Kates, *U.S. Global Health Policy*, 1, 9.

[130] "About the Department of Defense (DOD)," U.S. Department of Defense, accessed September 4, 2014, http://www.defense.gov/about/#mission.

Secretary of Defense, the Joint Chiefs of Staff, the Combatant Commanders, and the military departments or services. Health activities are carried out under all four components.[131]

1. Office of the Secretary of Defense

Figure 3 provides an organizational structure of The Office of the Secretary of Defense (OSD), which emphasizes the agencies and activities involved with global health.

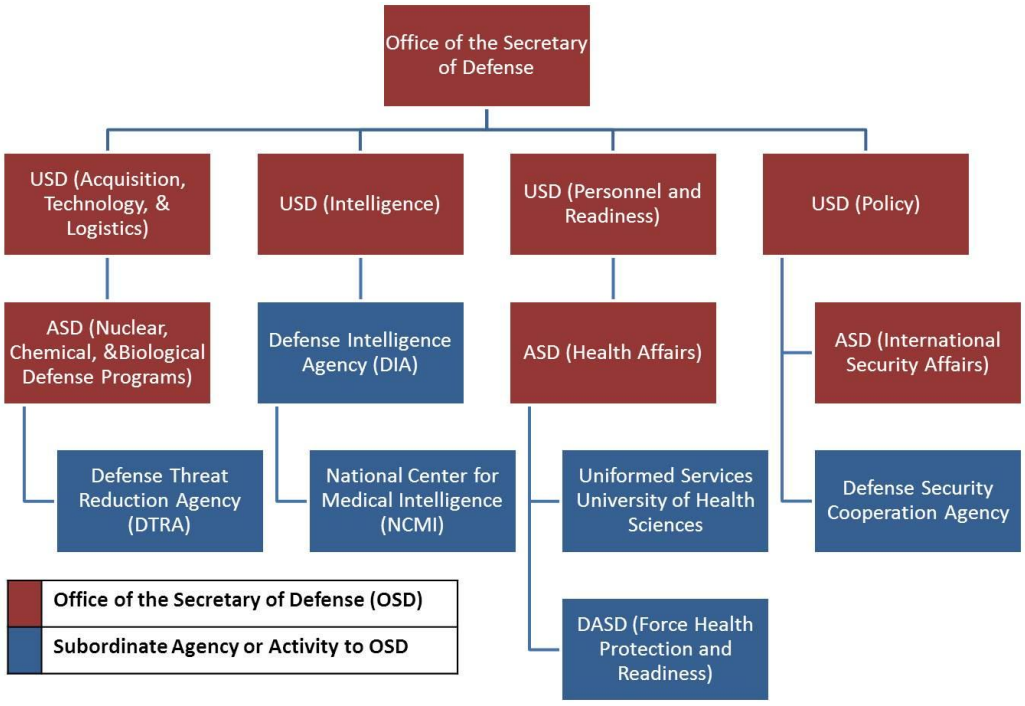

Figure 3. Office of the Secretary of Defense: Global Health Organizational Chart[132]

OSD is the principal staff element for the Secretary of Defense. The office carries out "policy development, planning, resource management, fiscal, and program evaluation responsibilities for the DOD."[133] Subordinate to the OSD are the Under Secretary of

[131] Michaud, Moss, and Kates, *U.S. Global Health Policy*, 11–12.

[132] Michaud, Moss, and Kates, *U.S. Global Health Policy*, 12.

[133] "Office of the Secretary of Defense," U.S. Department of Defense, accessed September 7, 2014, http://www.defense.gov/osd/.

Defense (USD) offices, and subordinate to those are the offices of the Assistant Secretary of Defense (ASD). These offices form the nexus of the OSD. OSD also provides oversight and management of numerous defense agencies and field activities. Many of the OSD offices have health or health-related activities, or have oversight over agencies and activities that carry out these functions.[134]

The ASD for Health Affairs (ASD-HA) exercises primary responsibility over the entire Military Health System (MHS) and serves as the principal advisor to the Secretary of Defense "for all DOD health and force health protection policies, programs, and activities."[135] In particular, the ASD-HA provides advice on global health engagement, medical research and development, and health surveillance.[136] The Office of the Deputy Assistant Secretary of Defense (DASD) for Force Health Protection and Readiness (FHP&R) exist under ASD-HA, which has divisions in international health, civil-military medicine, and medical countermeasures among many others.[137] Also, the Uniformed Services University of the Health Sciences (USUHS) functions under the ASD-HA; the university accepts international students and has numerous centers and institutes with implications for global health.

The Defense Security Cooperation Agency (DSCA) operates as a defense agency under the direction of the USD for Policy. The agency's mission is to oversee the execution of DOD security assistance and security cooperation programs under its responsibility.[138] These programs include Foreign Military Sales (FMS), Humanitarian Assistance (HA), International Military Education and Training (IMET), and partnership

---

[134] "Office of the Secretary of Defense," U.S. Department of Defense; Michaud, Moss, and Kates, *U.S. Global Health Policy*, 13.

[135] U.S. Department of Defense, *Department of Defense Directive: Assistant Secretary of Defense for Health Affairs (ASD(HA))*, Number 5136.01 (Washington, DC: Department of Defense, 2013), 1.

[136] Ibid., 2.

[137] Force Health Protection & Readiness, "FHP&R Divisions," The Office of the Deputy Assistant Secretary of Defense, last modified September 8, 2014, http://fhpr.dhhq.health.mil/home.aspx.

[138] U.S. Department of Defense, *Department of Defense Directive: Defense Security Cooperation Agency (DSCA)*, Number 5105.65 (Washington, DC: Department of Defense, 2012), 1.

capacity building among many others.[139] Under DSCA, foreign military financing (FMF) has been used to procure medical equipment for partner states.[140]

The Defense Threat Reduction Agency (DTRA) is a defense agency under the OSD, more specifically the USD for Acquisitions, Technology, and Logistics (AT&L). The agency also serves as a combat support agency to the Combatant Commanders (CCDRs). DTRA's primary mission is to counter Weapons of Mass Destruction (WMD).

Under the USD for Intelligence and the Defense Intelligence Agency is the National Center for Medical Intelligence. The NCMI prepares and coordinates "integrated, all-source intelligence for the U.S. Department of Defense (DOD) and other government and international organizations on foreign health threats and other medical intelligence issues to protect U.S. interests worldwide."[141] The NCMI mainly provides medical intelligence support to military operations and commanders.[142]

2. Organization of CJCS

Figure 4 depicts the organizations involved in health activities under the Joint Staff.

[139] "Programs," Defense Security Cooperation Agency, accessed September 8, 2014, http://www.dsca.mil/about-us/programs-pgm.

[140] U.S. Department of Defense [DOD], *DOD HIV/AIDS Prevention Program (DHAPP), Annual Report 2012* (Washington, DC: Department of Defense, 2012), vi, http://www.med.navy.mil/sites/nhrc/dhapp/countryreports/Documents/yearly12/FullReport12.pdf.

[141] U.S. Department of Defense, *Department of Defense Instruction: National Center for Medical Intelligence (NCMI)*, Number 6420.01 (Washington, DC: Department of Defense, 2009), 2.

[142] Ibid., 4.

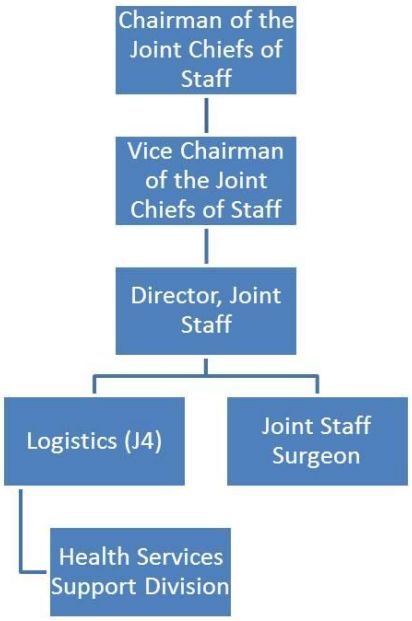

Figure 4. CJCS and the Joint Staff: Global Health Organizational Chart[143]

The Chairman of the Joint Chiefs of Staff (CJCS) serves as the senior ranking member of the Armed Forces and the principal military adviser to the President, the Secretary of Defense, and the National Security Council (NCS). The CJCS has no command authority; instead, command authority rests with each Combatant Commander (CCDR). The collective members of the Joint Chief of Staff (JCS) include the CJCS, the Vice Chairman, and the head of each military department to include the National Guard Bureau.[144] The organization of the JCS has a supporting Joint Staff.

The Joint Staff assists the CJCS with providing the "unified strategic direction of the combatant forces; their operation under unified command; and for their integration into an efficient team of land, naval, and air forces."[145] The Joint Staff includes the Joint Staff Surgeon and the Health Services Support Division. The Surgeon serves as the chief medical advisor to the CJCS. The Health Services Support Division coordinates health

[143] Michaud, Moss, and Kates, *U.S. Global Health Policy*, 13.

[144] The Joint Staff, "About the Joint Chiefs of Staff," The Joint Chiefs of Staff, accessed September 9, 2014, http://www.jcs.mil/About.aspx.

[145] Ibid.

policies and operations across military services and combatant command authority (COCOM).[146]

3. Combatant Commands

Figure 5 provides the organizational structure for the CCMDs.

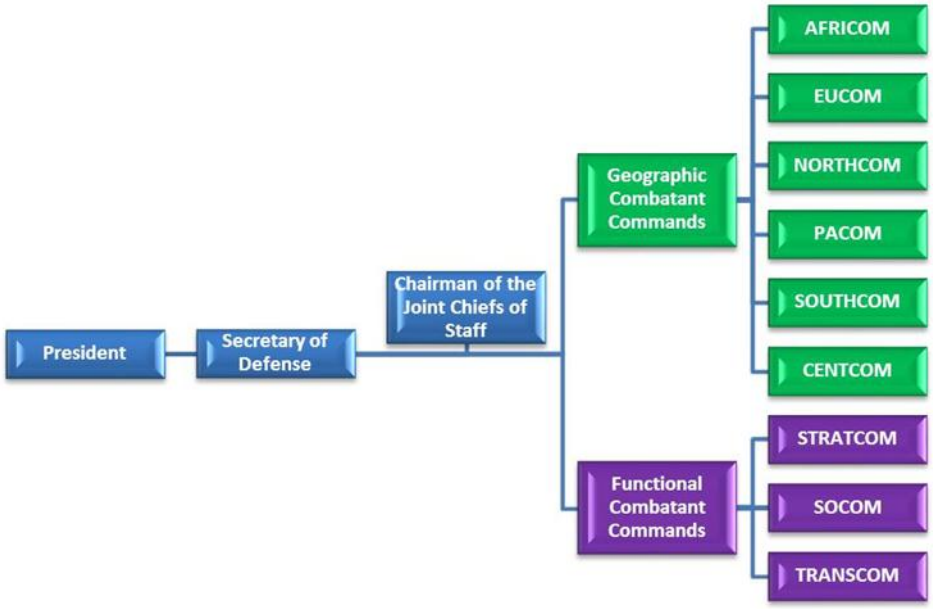

Figure 5. Combatant Commands: Organizational Chart[147]

The DOD defines a Combatant Command (CCMD) as "a unified or specified command with a broad continuing mission under a single commander established and so designated by the President, through the Secretary of Defense and with the advice and assistance of the Chairman of the Joint Chiefs of Staff."[148] Currently, there are nine CCMDs with each being assigned an Area of Responsibility (AOR). These AOR can either be a geographic region or a functional area.

---

[146] Michaud, Moss, and Kates, *U.S. Global Health Policy*, 13-14.

[147] Directorate for Organizational and Management Planning, "Organization of the Department of Defense," Office of the Secretary of Defense, last modified March 2012, http://odam.defense.gov/Portals/43/Documents/Functions/Organizational%20Portfolios/Organizations%20and%20Functions%20Guidebook/DoD_Organization_March_2012.pdf.

[148] U.S. Department of Defense, *Doctrine for the Armed Forces of the United States*, Joint Publication 1 (Washington, DC: Joint Chiefs of Staff, 2013), GL-5.

The authority each CCDR exercises within his or her AOR is known as COCOM. COCOM allows the CCDR to organize, employ, assign tasks, designate objectives, and ensure logistical support to the forces necessary to accomplish the missions assigned to that command.[149] Within each CCMD is an Office of the Command Surgeon. The Command Surgeon, typically, serves as the CCDR's primary advisor on all health related matters. The primary mission of Office of the Command Surgeon is to ensure the health service support and force health protection of the forces within the COCOM, while working with the supporting service component commands.

CCMDs conduct global health missions when assigned by the Secretary of Defense such as Humanitarian Assistance/Disaster Relief (HA/DR) missions. Military Health Support to Stability Operations (MSO) can also take place within a CCDR's AOR. During MSO, the MHS must be able to "establish, reconstitute, and maintain health sector capacity and capability for the indigenous population when indigenous, foreign, or U.S. civilian professionals cannot do so."[150] Also, COCOM allows the CCDR to carry out Theater Security Cooperation (TSC) events when they serve as a line of effort to theater campaign plan end state. Typically, TSC events seek to build partner capacity.

4. Military Departments (under JCS)

The DOD encompasses three military departments: the Department of the Navy, the Department of the Army, and the Department of the Air Force. The Department of the Navy encompasses both the U.S. Navy and U.S. Marine Corps. Each military department is headed by a service chief. The service chiefs serve as a member on the JCS and are responsible for the management of his or her respective service.[151] All three military departments have health activities involved in global health. Figure 6 highlights the military departments' command structures and elements directly involved with global health.

---

[149] Ibid., xx.

[150] U.S. Department of Defense, *Department of Defense Instruction: Military Health Support to Stability Operations*, Number 6000.16 (Washington, DC: Department of Defense, 2010), 2.

[151] The Joint Staff, "About the Joint Chiefs of Staff."

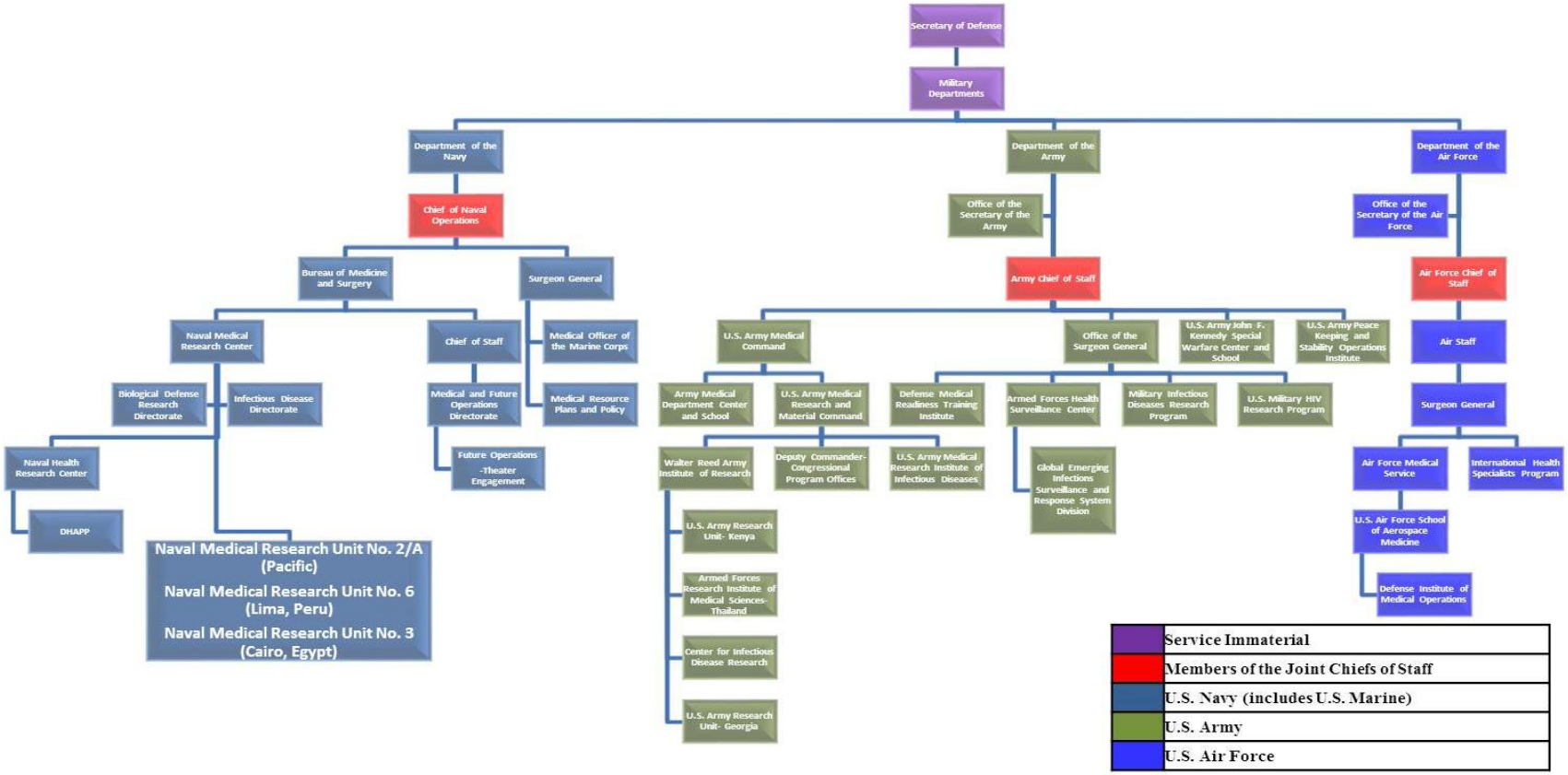

Figure 6. Military Departments: Global Health Organizational Chart[152]

[152] Michaud, Moss, and Kates, *U.S. Global Health Policy*, 10.

a. Department of the Navy

The naval elements of the MHS operate under the direction of the Navy Surgeon General, who also supports the U.S. Marine Corps. The Navy Surgeon General leads both the Office of the Navy Surgeon General and the Navy's Bureau of Medicine and Surgery (BUMED).[153] The Office of the Navy Surgeon General serves as a supporting staff to the Chief of Naval Operations; whereas, BUMED is a command headquarters for Navy Medicine. The majority of global health-related activities operate underneath BUMED and the Naval Medical Research Center. These activities include the overseas Naval Medical Research Units (NAMRUs) and the Defense HIV/AIDS Prevention Program (DHAPP).[154]

b. Department of the Army

Similar to the Department of the Navy, the MHS under the Department of the Army operates largely under the direction of the Army Surgeon General. The Army Surgeon General serves both as the commanding general for U.S. Army Medical Command (MEDCOM) and as a primary staff officer for the Office of the Surgeon General (OTSG) under the Headquarters, Department of the Army (HQDA). The OTSG develops policy and budget, whereas MEDCOM executes those actions. The staffs for both organizations have largely merged creating a "One Staff" to synchronize efforts.[155]

Global health activities or activities that have implications on global health are numerous under the Department of the Army and OTSG. They include the Armed Forces Health Surveillance Center (AFHSC), the Defense Medical Readiness Training Institute (DMRTI), the U.S. Military Infectious Diseases Research Program, and the U.S. Military HIV Research Program (MHRP). The AFHSC oversees GEIS Division (AFHSC-GEIS) whose efforts support disease surveillance and response among deployed U.S. military

---

153 Ibid., 17.

154 Ibid., 18.

155 "Introduction to the U.S. Army Medical Department," Army Medicine, U.S. Army, accessed September 9, 2014, http://armymedicine.mil/Pages/Introduction-to-the-US-Army-Medical-Department.aspx.

personnel globally.[156] Also, AFHSC-GEIS partners with 35 state partners to "conduct disease surveillance and rapid outbreak response, encourage research and innovation, and build capacity … partner activities are directed toward improvement of each country's diagnostic and reporting requirements in accordance with World Health Organization's International Health Regulations (2005) core capacities."[157] DMRTI offers courses in HA and MSO. Both DMRTI and MHRP are overseen by the Army Surgeon General but operate under other MEDCOM organizations.[158]

MEDCOM's global health activities primarily operate under the U.S. Army Medical Research and Materiel Command (USAMRMC). Subordinate organizations include the Walter Reed Army Institute of Research (WRAIR) and the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID). USAMRIID specializes in biodefense research and serves as a DOD reference laboratory for the identification of biological agents.[159] WRAIR specializes in biomedical research and serves as the DOD lead agent for research in infectious disease. WRAIR subordinates include the Center for Infectious Disease Research and the Army's research units located in infectious disease laboratories overseas in Kenya, Thailand, and Georgia.[160]

c. Department of the Air Force

The Air Force Surgeon General has "authority to commit resources worldwide for the Air Force Medical Service, to make decisions affecting the delivery of medical services, and to develop plans, programs and procedures to support worldwide medical service missions." He or she also serves as the primary medical advisor to the Secretary of the Air Force and Air Force Chief of Staff. The global health related activities of the

---

[156] Michaud, Moss, and Kates, *U.S. Global Health Policy*, 17.

[157] "Global Emerging Infections Surveillance & Response System," Armed Forces Health Surveillance Center [AFHSC], accessed September 10, 2014, http://www.afhsc.mil/geis.

[158] Michaud, Moss, and Kates, *U.S. Global Health Policy*, 17.

[159] U.S. Army Medical Research Institute of Infectious Diseases, "About USAMRIID," U.S. Army Medical Department, accessed September 10, 2014, http://www.usamriid.army.mil/aboutpage.cfm.

[160] Walter Reed Army Institute of Research, "Subordinate Commands," U.S. Army Medical Research and Materiel Command, last modified September 10, 2014, http://wrair-www.army.mil/WRAIRSubordinateCommands.aspx.

U.S. Air Force is much more limited than the other services; however, the activities highlight individual training in international health. The primary activities include the Defense Institute of Medical Operations (DIMO) and the International Health Specialists Program.[161]

C. METHODOLOGY FOR ANALYSIS

An analysis of how DOD global health programs can support or do support IHR core capacities will be broken down by either a specified program or organization. The analysis will go beyond the selective global health programs designated by Congress and will include defense health programs, as well as Cooperative Threat Reduction (CTR) programs. The analysis will expand upon the work already performed by the Henry J. Kaiser Family Foundation that identifies DOD global health-related activities. Taking the analysis further will entail identifying the particular programs that correspond to IHR core capacities and their possible impact to improve compliance.

D. LIMITATIONS

The extent of research and analysis of DOD global health programs is constrained to open source information. No interviews, For Official Use Only (FOUO), or classified information were gathered for the analysis. The work builds off the previous analysis of DOD global health policy, programs, and organizations, as well as the stated goals of those programs and organizations.

The greatest limitation of the analysis is separating the extent of intra- and interagency coordination, as well as discerning the exact funding for each particular program. Many of the DOD activities are not constrained to a single DOD office or command. For example, in FY09, AFHSC-GEIS funded training programs for Geographic CCMDs through the Center for Disaster and Humanitarian Assistance

[161] Michaud, Moss, and Kates, *U.S. Global Health Policy*, 18-19.

Medicine (CDHAM), which is part of USUHS.[162] By extending credit solely to AFHSC-GEIS, it neglects the contributions of the supporting organizations.

Moreover, an organization may receive resources through multiple funding streams and connecting an outcome to a particular funded program may prove impractical. The DOD overseas laboratories receive funding through numerous defense health programs; to avoid error, the overseas laboratories efforts will be captured as a supporting effort to other entities.

Finally, the analysis of HA/DR programs will not be evaluated. While, HA/DR efforts can assist partner states in response to infectious disease outbreaks, they are reactive not proactive efforts to increase response capacity. HA/DR are entirely scenario dependent and based upon host country requests.

E. ACTIVITIES, FUNDING, AND ANALYSIS

The activities selected in this section represent the DOD global health-related activities that not only correlate to IHR core capacities but also support or build upon those capacities. Some of these activities are DOD organizations, funded programs, or both. The activities that support the IHR core capacities include the AFHSC-GEIS, the DOD overseas laboratories, DHAPP/MHRP, and the Cooperative Biological Engagement Program (CBEP).

1. Global Emerging Infectious Disease System

The DOD-GEIS emerged from Presidential Decision Directive NSTC-7, released in 1996, that sought to expand the "support of global surveillance, training, research, and response to emerging infectious disease threats."[163] Initially, DOD-GEIS operated as a program requirement predicated on existing DOD resources and operations. Activities

[162] Jean L. Otto et al., "Training Initiatives within the AFHSC-Global Emerging Infections Surveillance and Response System: Support for IHR (2005)," BMC Public Health 11, suppl. 2 (2011): S5, http://www.biomedcentral.com/1471-2458/11/S2/S5.

[163] White House, *Presidential Decision Directive NSTC-7: Emerging Infectious Diseases*, 1996, http://fas.org/irp/offdocs/pdd/index.html.

were coordinated from a Central Hub office located within WRAIR. In 2008, the program was transferred to and created as a division under AFHSC.[164]

By 2010, the newly renamed AFHSC-GEIS began to integrate the guidelines set forth by the WHO IHR into all surveillance activities. Currently, "AFHSC-GEIS provides direction, funding and oversight to a network of over 35 partners based in all regions of the world. Working in conjunction with their host nations, these partners conduct disease surveillance and rapid outbreak response, encourage research and innovation, and build capacity."[165]

AFHSC receives defense health program funds from the DASD (FHP&R) with a budget of $71.38 million for FY2014.[166] The budget has grown consistently since FY2009. For FY2015, the budget allocated to AFHSC is projected to grow by $6.053 million for the purpose of biosurveillance.[167]

The strategic model for the organization is built upon four strategic goals concentrated on five categories of infectious disease. Figure 7 illustrates the AFHSC-GEIS strategic model. The achievements (outputs) outlined in the *FY2010 AFHSC-GEIS Annual Report* can be both aligned against the strategic goals of AFHSC-GEIS and the WHO IHR core capacities.

---

[164] Jose L. Sanchez et al., "Capacity-Building Efforts by the AFHSC-GEIS Program," *BMC Public Health* 11, suppl. 2 (2011): S4, http://www.biomedcentral.com/1471-2458/11/S2/S4.

[165] "Global Emerging Infections Surveillance & Response System," AFHSC.

[166] Melinda Moore, Gail Fisher, and Clare Stevens, *Toward Integrated DoD Biosurveillance: Assessment and Opportunities* (Santa Monica, CA: Rand Corporation, 2013), 81, http://www.rand.org/content/dam/rand/pubs/research_reports/RR300/RR399/RAND_RR399.pdf.

[167] Office of the Under Secretary of Defense (Comptroller), *Defense Health Program Fiscal Year (FY) 2015 Budget Estimates Defense Health Program*, U.S. Department of Defense, March 2014, CHS-7 http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2015/budget_justification/pdfs/09_Defense_Health_Program/DHP_PB15_Vol_I-II.pdf.

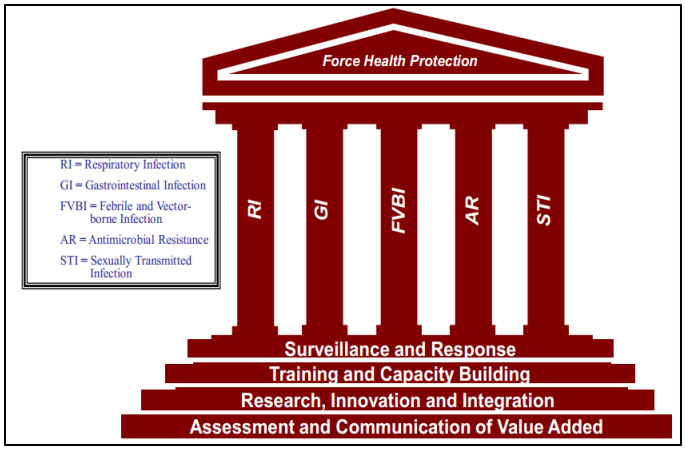

Figure 7. AFHSC-GEIS Strategic Model[168]

a. *Surveillance and Response*

Analysis of the achievements aligned with the GEIS strategic goal of surveillance and response overwhelmingly correspond to the IHR core capacity of surveillance, and to a much smaller degree the IHR core capacity of response. Overall, the program goal of surveillance and response account for the second greatest amount of achievements outlined for FY2010. Table 8 provides a breakdown of the analysis and the key partners involved.

[168] Keven L. Russell et al., "The Global Emerging Infection Surveillance and Response System (GEIS), a U.S. Government Tool for Improved Global Biosurveillance: A Review of 2009," *BMC Public Health* 11, suppl. 2 (2011): S2, http://www.biomedcentral.com/1471-2458/11/S2/S2.

Program Goals: Conduct surveillance and outbreak response activities.[a]	
Related IHR Core Capacity or Hazard[b]	**Outputs (FY10 AFHSC-GEIS Achievements)[c]**
Surveillance	Supports national surveillance in 75 countries.
Response	Responded to 48 disease outbreak requests for assistance in 17 different countries.
Surveillance	Established and maintained Influenza-like Illness (ILI) surveillance in 10 South and Central American countries, totaling 52 sites (NAMRU-6, PHCR-South).
Response	Supported pandemic surge response through collection and analysis of over 81,000 samples for A/H1N1 (USAFSAM, NHRC, LRMC).
Surveillance and Zoonotic Events (IHR Hazard)	Conducted influenza surveillance at the human-animal interface in seven countries in Africa, Asia, and Europe to identify transmission risk factors and potential new zoonotic influenza virus strains (AFRIMS, GVFI, NAMRU-2, University of Florida, USAMRU-K).
Surveillance	Identified West Nile Virus seropositive samples, from Kabul, Kandahar and Helmond Provinces in Afghanistan, with seroprevalences similar to those documented in Egypt (11% IgG, and 0.7% IgM positive)(NAMRU-3).
Surveillance	Collaborated with Syrian scientists in diagnosing 31 cases of Leishmania tropica (NAMRU-3).
Surveillance	Successfully transported, tested, and diagnosed 29 cases of undiagnosed febrile illness in rural Kenya using improved laboratory infrastructure (P. falciparum: 27, P. vivax: 1, and Burkholderia meliodosis (B. cepacia complex): 1) (USAMRU-K).
Surveillance	Confirmed scrub typhus infection in 2.5% of serum samples from febrile patients in Cambodia (NAMRU-2).
Surveillance	Identified two new Dengue virus type-1 (DENV-1) lineages in Myanmar, one indistinguishable from a 2006 circulating DENV-1 strain in southern China, and the other indistinguishable from a strain circulating in Vietnam (AFRIMS).
Preparedness	Forecasted the January-February 2010 Rift Valley Fever outbreaks in South Africa (NASA).
Preparedness	Characterized the prevalence of spotted fever group (30.4%) and typhus group (5.8%) rickettsial infections in undiagnosed febrile illness cases in Kenya (NMRC, USAMRU-K).
Response and Surveillance	Provided laboratory support for cholera outbreaks in collaboration with the Nepalese National Public Health Laboratory (NPHL) and the Walter Reed/AFRIMS Research Unit Nepal (WARUN). In October 2009, WARUN reported 52% of stool samples from a diarrheal outbreak had Vibrio cholerae. In April 2010, V. cholera was detected in 14 NPHL samples from an outbreak in western Nepal (AFRIMS).
Response	Provided laboratory support to the Cambodian Ministry of Health during a V. cholera outbreak and demonstrated resistance to the first-line antibiotic, tetracycline, among most of the isolates; thereby contributing to public health officials' modifications of their guidance (NAMRU-2).
Surveillance	Confirmed the presence of Plasmodium falciparum artemisinin resistance in Cambodia, and studied the dose-dependent risk of neutropenia occurring after 7-day courses of artesunate monotherapy in Cambodian patients with acute falciparum malaria (AFRIMS).
Surveillance and Response	Assisted in the identification of Streptococcus suis from a specimen referred to Naval Medical Research Unit No. 2 for antimicrobial susceptibility testing, prompting an epidemiological investigation by World Health Organization and Cambodia-Centers for Disease Control and Prevention (NAMRU-2).

[a.] Strategic program goals taken from AFHSC-GEIS website ("Global Emerging Infections Surveillance & Response System," Armed Forces Health Surveillance Center, accessed September 10, 2014, http://www.afhsc.mil/geis.).

[b.] Each output relates to a IHR core-capacity or hazard based on the IHR Core Capacity Montoring Framework Checklists (WHO, "IHR Core Capacity Monitoring Framework," 26-55.)

[c.] Outputs (achievements) were gathered using the *FY2010 GEIS Annual Report*. Outputs that did not relate to the IHR were omitted. (Armed Forces Health Surveillance Center, *Global Emerging Infections Surveillance and Response System, Fiscal Year 2010, "Partnering in the Fight against Emerging Infections,"* Department of Defense (Washington DC: Government Printing Office, 2010), 3, 6, 8, 10, 12, 14, 16, 18.

Table 8. AFHSC-GEIS: Analysis of Surveillance and Response Program Goal Achievements[169]

169 "Global Emerging Infections Surveillance & Response System," AFHSC; WHO, "IHR Core Capacity Monitoring Framework," 26–55; Armed Forces Health Surveillance Center, *Global Emerging Infections Surveillance and Response System*, *Fiscal Year 2010*, *"Partnering in the Fight against Emerging Infections*," (Washington, DC: Department of Defense, 2010), 3, 6, 8, 10, 12, 14, 16, 18.

b. Training and Capacity Building

The majority of achievements declared by AFHSC-GEIS for FY2010 correspond to strategic program goal of training and capacity building for partnered states. These achievements largely prescribe to both the IHR core capacities of surveillance and laboratory. Table 9 provides the analysis for training and capacity building program goal achievements.

Program Goals: Expand surveillance and epidemiology training and capacity building within the US military and in partner nations.[a]	
Related IHR Core Capacity[b]	**Outputs (FY10 AFHSC-GEIS Achievements)[c]**
Laboratory and Human Resources	Provided training in laboratory testing and epidemiology of influenza, malaria, diarrheal disease and other EIDs to 1,614 medical and laboratory personnel from 31 countries in Central Asia, the Middle East, North Africa and sub-Saharan Africa (NAMRU-3, USAMRU-K).
Laboratory, Surveillance, and Human Resources	Supported training in surveillance, diagnostic testing and response of influenza, febrile illness, leishmaniasis, and bacterial/enteric disease diagnosis to over 200 medical and laboratory personnel from the South American region (NAMRU-6, PHCR-South).
Laboratory and Surveillance	Trained 1,049 Royal Thai Army (RTA) staff in support of military unit-based surveillance at five border areas in Thailand as well as 20 civilian and over 70 Cambodian military personnel in basic malaria microscopy and diagnostics (AFRIMS).
Laboratory, Surveillance, and Human Resources	Trained five Cambodian National Institute of Public Health/NAMRU-2 technicians and 30 Cambodian nationals in influenza strain sequencing, surveillance and epidemiology; provided bacterial laboratory testing support to six Ministry of Health District/Provincial hospitals (NAMRU-2).
Laboratory, Surveillance, and Human Resources	Supported training of 40 medical and laboratory personnel from four countries in East/Central Africa on basic malaria microscopy, influenza, diagnoses of sexually transmitted infections, enteric infections and other febrile illness.
Surveillance and Response	Helped establish National Influenza Centers (NICs) in Ghana, Burkina Faso, Togo and Cote d'Ivoire, and supported NICs in Kenya, Tanzania, and Uganda (NAMRU-3, USAMRU-K).
Human Resources	Trained 39 students from 18 countries toward their Certification in Emerging Infectious Diseases (University of Florida).
Laboratory, Surveillance, Response, and Human Resources	Trained over 200 laboratorians and scientists throughout Central and South America on epidemiology, outbreak response and laboratory diagnostic techniques (NAMRU-6).
Preparedness, Response, and Human Resources	Conducted 14 training sessions, training 607 individuals from 19 countries in support of US Combatant Command partnerships improving the abilities of local Ministries of Defense and Health to respond to and prevent emerging disease threats (CDHAM).
Response	Collaborated with WHO's Eastern Mediterranean Regional Office to conduct training on molecular genetics and sequencing for students from the NICs of Egypt, Morocco and Oman, thereby helping these NICs identify new influenza strains and track the emergence of antiviral drugs resistance (NAMRU-3).
Surveillance and Response	Worked with host country counterparts to establish new NICs in Burkina Faso and Togo and provided continued support to existing NIC in Cote d'Ivoire (NAMRU-3).
Coordination and Communication	Partnered and coordinated with Institute Pasteur and host country counterparts to support and enhance the NIC capabilities in the Kingdom of Cambodia (NAMRU-2).
Coordination and Communication	Developed new military-to-military (mil-mil) partnerships in Africa, Central America, and Southeast Asia for respiratory disease surveillance (AFRIMS, GVFI, NAMRU-3, USAMRU-K, PHCR-S).
Laboratory	Increased Lassa Diagnostic Laboratory capability in Sierra Leone's Kenema Government Hospital by adding a state-of-the-art satellite system for email communication, and a liquid nitrogen generator for improved sample storage and shipping (USAMRIID).
Preparedness	Geographically expanded surveillance of artemisinin resistant Plasmodium falciparum in Southeast Asia to better characterize the spread, and inform malaria containment efforts executed by World Health Organization (WHO) and local malaria control programs (AFRIMS and NAMRU-2).
Laboratory and Human Resources	Conducted a Malaria Microscopy Training Medical Civil Action Program (MEDCAP) as part of Honest Talon 10-01, training 43 Tanzanians and identifying seven trainees as mentors (USAMRU-K).
Surveillance	Assisted in funding two surveillance sites in Kericho, Kenya as part of an enteric infections surveillance field network and proposed vaccine testing sites (USAMRU-K).
Response	Instituted a surveillance system in intensive care units in Egyptian and Jordanian hospitals to estimate infection rates and antimicrobial resistance patterns associated with medical devices.
Surveillance and Laboratory	Instituted surveillance at the primary STI referral clinic in Djibouti and enhanced clinic laboratory capabilities to culture N. gonorrhoeae and perform antimicrobial susceptibility testing (NAMRU-3).

[a.] Strategic program goals taken from AFHSC-GEIS website ("Global Emerging Infections Surveillance & Response System," Armed Forces Health Surveillance Center, accessed September 10, 2014, http://www.afhsc.mil/geis.).

[b.] Each output relates to a IHR core-capacity or hazard based on the IHR Core Capacity Montoring Framework Checklists (WHO, "IHR Core Capacity Monitoring Framework," 26-55.)

[c.] Outputs (achievements) were gathered using the *FY2010 GEIS Annual Report*. Outputs that did not relate to the IHR were omitted. (Armed Forces Health Surveillance Center, *Global Emerging Infections Surveillance and Response System, Fiscal Year 2010, "Partnering in the Fight against Emerging Infections,"* Department of Defense (Washington DC: Government Printing Office, 2010), 3, 6, 8, 10, 12, 14, 16, 18.

Table 9. AFHSC-GEIS: Analysis of Training and Capacity Building Program Goals[170]

[170] Ibid.

c. Research, Innovation, and Integration

The achievements that correspond to the program goal for research, innovation, and integration mostly align to the IHR core capacity of preparedness. These preparedness activities mostly align due to their risk assessment modeling. Table 10 provides the analysis of these program goals.

Program Goals	Related IHR Core Capacity	Outputs (FY10 AFHSC-GEIS Achievements)
Support research, innovation and integration initiatives that emphasize an eventual product that will enhance force health protection such as drug and diagnostic tool development.	Surveillance	Continued support and enhancement of electronic Unit-Based Surveillance (UBS) project in collaboration with the Royal Thai Army (AFRIMS).
	Surveillance	Initiated the first phase of deployment for open source electronic surveillance and early warning system for resource limited settings (JHU/APL).
	Preparedness	Created an accurate model for predicting Japanese encephalitis (JE) risk (using presence of the vector Culex tritaeniorhynchus and other factors) in Korea, and piloted expansion of the predictive model using JE & other illnesses in Southeast Asia (JE, Chikungunya), South and Central Asia (JE, leishmaniasis), Indonesia (malaria) and Peru (Bartonellosis) (USUHS).
	Preparedness	Developed monthly normalized difference vegetation index (NDVI) and land surface temperature anomaly maps and space-time (Hovmoller) plots for Ukraine/SE Europe, the Middle East, Turkey and Afghanistan as part of the development of a predictive analysis tool for tick-borne diseases (CCHF and rickettsial diseases) in the region (NASA).
	Preparedness	Established VectorMap (www.vectormap.org) which now contains over 13,200 datasets in MosquitoMap (www.mosquitomap.org) from 140 countries; 50,000 datasets from 52 African countries in TickMap (www.tickmap.org); and 3,400 datasets in SandflyMap (www.sandflymap.org) (WRAIR).
	Preparedness	Continued characterization of drug sensitivity patterns in Kenya to inform DoD product development and malaria public health officials in Kenya (USAMRU-K).

[a.] Strategic program goals taken from AFHSC-GEIS website ("Global Emerging Infections Surveillance & Response System," Armed Forces Health Surveillance Center, accessed September 10, 2014, http://www.afhsc.mil/geis.).

[b.] Each output relates to a IHR core-capacity or hazard based on the IHR Core Capacity Montoring Framework Checklists (WHO, "IHR Core Capacity Monitoring Framework," 26-55.)

[c.] Outputs (achievements) were gathered using the *FY2010 GEIS Annual Report* . Outputs that did not relate to the IHR were omitted. (Armed Forces Health Surveillance Center, *Global Emerging Infections Surveillance and Response System, Fiscal Year 2010, "Partnering in the Fight against Emerging Infections,"* Department of Defense (Washington DC: Government Printing Office, 2010), 3, 6, 8, 10, 12, 14, 16, 18.

Table 10. AFHSC-GEIS: Analysis of Research, Innovation, and Integration Program Goals[171]

[171] Ibid.

d. Assessment and Communication of Value Added

All achievements aligned to the strategic program goal for assessment and communication of value added reasonably aligns to the IHR core capacity of coordination and communication. Table 11 provides the analysis of these achievements.

Program Goals[a]	Related IHR Core Capacity[b]	Outputs (FY10 AFHSC-GEIS Achievements)[c]
Assessment and communication of value added by the network.	Coordination and Communication	Conducted "Conferencia Regional Andina sobre Enfermedades Infecciosas", a three day conference on emerging infectious diseases (EIDs) with participants and regional health experts from 11 countries in Central and South America (NAMRU-6).
	Coordination and Communication	Developed steering committees for respiratory infection, gastrointestinal infection, malaria and febrile and vector-borne infection programs to improve the efficiency and effectiveness of Department of Defense surveillance activities (AFHSC-GEIS Partner Network).
	Coordination and Communication	Conducted regional conference for over 120 public health leaders from 12 Central and South American countries and multiple international health organizations on public health challenges throughout the Americas (NAMRU-6).
	Coordination and Communication	Established the Respiratory Pathogen Surveillance Steering Committee to improve the efficiency and effectiveness of DoD influenza and other respiratory disease surveillance activities (AFHSC).
	Coordination and Communication	Engaged the Malaria Surveillance Steering Committee to identify and prioritize surveillance needs, formulate surveillance goals, and improve the overall effectiveness of AFHSC malaria surveillance products (AFHSC).
	Coordination and Communication	Established an Enterics Surveillance Steering Committee to assist GEIS in identifying surveillance needs, formulating surveillance goals and improving overall effectiveness of the DoD enteric surveillance (AFHSC).

[a.] Strategic program goals taken from AFHSC-GEIS website ("Global Emerging Infections Surveillance & Response System," Armed Forces Health Surveillance Center, accessed September 10, 2014, http://www.afhsc.mil/geis.).

[b.] Each output relates to a IHR core-capacity or hazard based on the IHR Core Capacity Montoring Framework Checklists (WHO, "IHR Core Capacity Monitoring Framework," 26-55.)

[c.] Outputs (achievements) were gathered using the *FY2010 GEIS Annual Report* . Outputs that did not relate to the IHR were omitted. (Armed Forces Health Surveillance Center, *Global Emerging Infections Surveillance and Response System, Fiscal Year 2010, "Partnering in the Fight against Emerging Infections,"* Department of Defense (Washington DC: Government Printing Office, 2010), 3, 6, 8, 10, 12, 14, 16,

Table 11. AFHSC-GEIS: Analysis of Assessment and Communication of Program Goals[172]

2. U.S. Army and Navy Overseas Laboratories

The DOD overseas laboratories include both Army and Navy assets and operate under WRAIR and NMRC respectively. The core function of the overseas laboratories is to conduct medical research that will contribute to overall military readiness. The research can lead to the development of vaccines, prophylactic drugs, and medical devices; it also increases the knowledge base on specific diseases. These achievements not only benefit military readiness but also the global community. Nonetheless, it is the

[172] Ibid.

laboratories other activities, global disease detection and capacity-building, that can help contribute to partner states' IHR compliance.[173]

The U.S. Army and Navy overseas laboratories largely contribute to global disease detection and capacity-building through funding by AFHSC-GEIS, DTRA, and PEPFAR. AFHSC-GEIS accounted for more than 20 percent of DOD overseas laboratories' budget in FY2010.[174] AFHSC-GEIS provides more funding than the Military Infectious Diseases Research Program (MIDRP), which more closely aligns to the DOD laboratories core function.[175] Contributions from PEPFAR amounted to $23 million and DTRA provided less than $1 million in FY2010.[176] USAMRU-K received the sum of PEPFAR funds to go toward care and treatment, and DTRA provides funds that go toward biosafety and biosecurity.[177]

The laboratories are a prerequisite for the AFHSC-GEIS to carry out its mission. They also service as WHO Collaborating Centers (NAMRU-3 and AFRIMS) and WHO Reference Laboratories (NAMRU-3 and USAMRU-K).[178] The laboratories are generally considered to be national assets by the host state, and have been integrated into the public health system.[179] The DOD overseas laboratories' activities relating to achieving WHO member state IHR compliance are included under the preceding AFHSC-GEIS program and the subsequent DTRA led Cooperative Biological Engagement Program; therefore, a further analysis will not be provided.

---

[173] James B. Peake, J. Stephen Morrison, Michele M. Ledgerwood, and Seth E. Gannon, *The Defense Department's Enduring Contributions to Global Health: The Future of the U.S. Army and Navy Overseas Medical Research Laboratories* (Washington, DC: Center for Strategic Studies, 2011), VII.

[174] Ibid., 18.

[175] Ibid.

[176] Ibid., 19.

[177] Ibid.

[178] Ibid., 5.

[179] Ibid., 6.

3. Defense HIV/AIDS Prevention Program and Military HIV Research Program

Mandated by DOD Directive 6485.02E, DHAPP supports all DOD global HIV/AIDS prevention programs and operates under the Naval Health Research Center in San Diego, California.[180] DHAPP aims to "reduce the incidence of HIV/AIDS among uniformed personnel across the globe."[181] The program achieves its stated mission by supporting HIV/AIDS prevention, care, and treatment of military members and their family in more than 80 nation states since inception.[182] This can extend to the greater civilian population when the military or its facilities are responsible for health activities within the state.[183]

DHAPP receives funding from the Defense Health Programs (DHP) and PEPFAR. The combined budget was $55.1 million in FY2012 with the majority, $47.1 million, coming from PEPFAR. Each state program can only receive funding from one source, either PEPFAR or DHP.[184]

FY2012 Acheivement	Related IHR Core-Capacity
3,377 health care workers were trained to provide HIV clinical services	Response
473,328 military and family members were counseled and tested for HIV infection and received their test results	Surveillance
665,785 military and family members were reached with comprehensive prevention messages	Risk Communication
243 new laboratories were equipped and supported for HIV testing and diagnostics	Laboratory

Table 12. DHAPP: Analysis of Outputs Related to IHR Core Capacities[185]

Table 12 lists the related IHR core capacities based on DHAPP achievements in FY2010. These achievements were aggregated and do not disassociate activities by state program; however, it does demonstrate that the activities do span four distinct IHR core capacities. Table 13 provides the list of countries with active DHAPP state programs.

[180] DOD, *DOD HIV/AIDS Prevention Program (DHAPP)*, vi.

[181] "DOD HIV/AIDS Prevention Program," Navy Medicine, U.S. Navy, accessed September 29, 2014, http://www.med.navy.mil/sites/nhrc/dhapp/Pages/default.aspx.

[182] DOD, *DOD HIV/AIDS Prevention Program (DHAPP)*, vi.

[183] Ibid., iv.

[184] Moss and Michaud, *The U.S. Department of Defense and Global Health*, 22.

[185] DOD, *DOD HIV/AIDS Prevention Program (DHAPP)*, iv.

While these programs have tangible achievements, they are limited in scope to primarily military-to-military engagements and focused on HIV/AIDS. Also, Table 13 identifies the state programs where MHRP operates.

FY2012 DHAPP State Programs By CCMD (Fund Source)	
CENTCOM	***EUCOM***
Angola (PEPFAR)	Estonia (DHP)
Benin (DHP)	Georgia (DHP)
Botswana (PEPFAR)	Moldova (DHP)
Burkina Faso (DHP)	Romania (DHP)
Burundi (PEPFAR)	Serbia (DHP)
Cameroon (PEPFAR)	Ukraine (PEPFAR)
Central African Republic (DHP)	
Chad (DHP)	***SOUTHCOM***
Côte d'Ivoire (PEPFAR)	Antigua and Barbuda (PEPFAR)
Democratic Republic of the Congo (PEPFAR)	Bahamas, The (PEPFAR)
Djibouti (PEPFAR)	Barbados (PEPFAR)
Ethiopia (PEPFAR)	Belize (PEPFAR)
Gabon (DHP)	Bolivia (DHP)
Gambia, The (DHP)	Colombia (DHP)
Ghana (PEPFAR)	Dominican Republic (PEPFAR)
Guinea (DHP)	Ecuador (DHP)
Kenya (PEPFAR)[ab]	El Salvador (PEPFAR)
Lesotho (PEPFAR)	Guatemala (PEPFAR)
Liberia (PEPFAR)	Guyana (PEPFAR)
Malawi (PEPFAR)	Honduras (PEPFAR)
Mali (DHP)	Jamaica (PEPFAR)
Morocco (DHP)	Nicaragua (PEPFAR)
Mozambique (PEPFAR)[a]	Peru (DHP)
Namibia (PEPFAR)	St. Kitts and Nevis (PEPFAR)
Niger (DHP)	Suriname (PEPFAR)
Nigeria (PEPFAR)[ab]	Trinidad and Tobago (PEPFAR)
Republic of the Congo (DHP)	
Rwanda (PEPFAR)	***PACOM***
Sao Tomé and Principe (DHP)	Indonesia (PEPFAR)
Senegal (PEPFAR)	Laos (DHP)
Sierra Leone (DHP)	Timor-Leste (DHP)
South Africa (PEPFAR)	Vietnam (PEPFAR)
South Sudan (PEPFAR)	
Swaziland (PEPFAR)	
Tanzania (PEPFAR)[ab]	
Togo (DHP)	
Tunisia (DHP)	
Uganda (PEPFAR)[a]	
Union of Comoros (DHP)	
Zambia (PEPFAR)	
[a] Represents states in which MHRP operates (MHRP also operates in Thailand)	
[b] Represents states with DHAPP overseen by MHRP	

Table 13. FY2012 DHAPP/MHRP State Programs: By CCMD and Fund Source[186]

[186] DOD, *DOD HIV/AIDS Prevention Program (DHAPP)*, 208–09.

Congress initiated MHRP in 1986, to protect military service members and serve the global community by, ultimately, developing a globally effective HIV vaccine.[187] The program operates under the command of WRAIR and utilizes a network of overseas research sites in six countries to accomplish its vision.[188] While the program's primary focus is in research towards a vaccine, it also carries out HIV/AIDS prevention, care, and treatment as a contributor of PEPFAR. PEPFAR contributed $47.2 million to MHRP in FY2012, and the National Institutes of Health (NIH) provided $42.7 million.[189] The remaining funding for MHRP in FY2012 amounted to $38.5 million, which originated from congressional special interest and U.S. Army research, development, test, and evaluation funding.[190]

Table 14 reveals achievements that correspond to IHR core capacities by MHRP location. The listing of achievements was obtained through MHRP state-specific fact sheets and is not constrained to a single year. While the goal of MHRP is for HIV research, the program has implications for IHR core capacity compliance. The primary implications on core capacities are with regards to surveillance, response, laboratory, and risk communication—similar to DHAPP.

[187] U.S. Military HIV Research Program, *U.S. Military HIV Research Program: Strategic Plan, June 28, 2010* (Silver Springs, MD: Walter Reed Army Institute of Research, 2010), 3.

[188] U.S. Military HIV Research Program, "About MHRP," Walter Reed Army Institute of Research, accessed October 2, 2014, http://www.hivresearch.org/about.php.

[189] Moss and Michaud, *The U.S. Department of Defense and Global Health*, 22.

[190] Ibid.

MHRP Sites	Kenya	Uganda	Nigeria	Tanzania
Achievement (IHR related core-capacity)	Supported HIV counseling and testing for 459,000 individuals (Surveillance)	Renovated two HIV clinics and supports a total of seven HIV/ART clinic sites (Surveillance)	Supported HIV testing and counseling for 70,000 individuals (Surveillance)	Supported HIV testing and counseling for 488,500 individuals (Surveillance)
Achievement (IHR related core-capacity)	Maintained the first and only College of American Pathologists (CAP)-accredited lab in Kenya (Laboratory)	Supported HIV counseling and testing to more than 100,000 individuals (Surveillance)	Opened a Defense Reference Laboratory (DRL) to serve as a reference laboratory for Nigerian military hospital laboratories and PEPFAR-supported research and diagnostics (Laboratory)	Increased laboratory capacity in with training, technology transfer, and College of American Pathologist (CAP) accreditation (Laboratory)
Achievement (IHR related core-capacity)		Supported community based outreach (Risk Communication)	Trained more than 200 laboratory staff in the accurate diagnosis of malaria infections, QA/QC and laboratory supervision (Laboratory)	Supported the estabilishment of pandemic influenza and malaria surveillance activities (Surveillance and Response)
Achievement (IHR related core-capacity)		Trained Kayunga District health care providers to offer routine testing and counseling to all hospital clients (Response)	Contributed to and supports national prevention programs and activities (Risk Communication)	
Achievement (IHR related core-capacity)			Supported two laboratory training centers (Laboratory)	

Table 14. MHRP: Analysis of Outputs to IHR Related Core Capacities[191]

[191] U.S. Military HIV Research Program, *Makerere University Walter-Reed Project: Country Fact Sheet* (Silver Springs, MD: Walter Reed Army Institute of Research, 2014), http://www.hivresearch.org/media/pnc/1/media.761.pdf; U.S. Military HIV Research Program, *U.S. Military HIV Research Program in Thailand: Country Fact Sheet* (Silver Springs, MD: Walter Reed Army Institute of Research, 2014), www.hivresearch.org; U.S. Military HIV Research Program *Walter-Reed Project-Nigeria: Country Fact Sheet* (Silver Springs, MD: Walter Reed Army Institute of Research, 2014), http://www.hivresearch.org/media/pnc/8/media.828.pdf; U.S. Military HIV Research Program *Walter-Reed Project-Kenya: Country Fact Sheet* (Silver Springs, MD: Walter Reed Army Institute of Research, 2014), http://www.hivresearch.org/media/pnc/8/media.758.pdf; U.S. Military HIV Research Program *Walter-Reed Project-Tanzania: Country Fact Sheet* (Silver Springs, MD: Walter Reed Army Institute of Research, 2014), http://www.hivresearch.org/media/pnc/6/media.856.pdf.

4. Cooperative Biological Engagement Program

CBEP is a component of the larger Cooperative Threat Reduction program (CTR), which aims "to reduce the threat from weapons of mass destruction (WMD) and related materials, technologies, facilities, and expertise."[192] Originally, CBEP focused on securing and dismantling the extensive biological weapons complex Russia inherited from the Soviet Union; however, the program extended globally in 2008. As part of this mission expansion, CBEP now serves two purposes: to enhance biological safety and security, as well as disease detection, diagnosis, and reporting within partner states. Under the direction of OSD, DTRA carries out the activities of CBEP in coordination with host states, interagency partners, and CCMDs.

Funding for CBEP has risen drastically since its inception. In FY2007, CBE funding amounted to $72.36 million; whereas, in FY2014, the amount appropriated was $260 million. Also the percentage of spending on CBEP as part of the larger CTR program grew from only 10 percent in the late 1990s to 60 percent by FY2014.[193] The FY2015 budget for CBEP, however, is estimated to be reduced by $3.238 million as compared to FY2014.[194]

[192] Defense Threat Reduction Agency [DTRA], *Fiscal Year 2015 Budget Estimates: Cooperative Threat Reduction Program* (Washington, DC: Government Printing Office, 2014), CTR-1137.

[193] Mary Beth D. Nikitin and Amy F. Woolf, *The Evolution of Cooperative Threat Reduction: Issues for Congress*, R43143, Congressional Research Service, 2014, 35, http://fas.org/sgp/crs/nuke/R43143.pdf.

[194] DTRA, *Fiscal Year 2015 Budget Estimates*, CTR-1153.

Fund BS&S enhancements	IHR Related Core-Capacity	Fund disease detection, diagnosis and reporting enhancements	IHR Related Core-Capacity
Continue BS&S upgrades to human and veterinary laboratories in Armenia and Ukraine	Laboratory	Continue human and veterinary training in epidemiology, laboratory management, and disease diagnosis in Armenia, Azerbaijan, Kazakhstan, and Ukraine	Surveillance and Laboratory
Complete construction of the CRL in Kazakhstan	Laboratory	Continue transition of sustainment of laboratories in Azerbaijan, Georgia, Kazakhstan, and Ukraine	Laboratory
Continue oversight on construction of CRL in Azerbaijan and installation of BS&S systems and equipment	Laboratory	Complete EIDSS implementation, training and upgrades in Armenia, Azerbaijan, Georgia, and Kazakhstan	Surveillance
Continue the development and implementation of BS&S Standard Operating Procedures across the Former Soviet Union	Laboratory	Conduct training in epidemiology, laboratory management and disease diagnosis in Kenya, Tanzania, Uganda, and up to three new countries in Africa	Surveillance and Laboratory
Continue the provision of Biorisk Management training in Armenia, Azerbaijan, Kazakhstan, and Ukraine	Laboratory	Install laboratory equipment in up to three new countries in Africa	Laboratory
Complete BS&S upgrades to human and veterinary laboratories in Kenya, Uganda, and Tanzania	Laboratory	Continue installation of laboratory equipment in Iraq and Afghanistan	Laboratory
Initiate BS&S upgrades to human and veterinary laboratories in up to three new countries in Africa	Laboratory	Fill gaps in diagnostics and reporting in Jordan	Surveillance
Conduct Biorisk Management training in Kenya, Uganda, Tanzania, and up to three new countries in Africa	Laboratory	Continue epidemiology training in Iraq and Afghanistan	Surveillance
Continue laboratory upgrades in Iraq and Afghanistan	Laboratory	Continue EIDSS and PACS installation and operator training in Iraq	Surveillance
Continue Biorisk Management training in Iraq and Afghanistan	Laboratory	Continue diagnostic training in Iraq	Laboratory
Continue the development and implementation of BS&S Standard Operating Procedures in Iraq and Afghanistan	Laboratory	Continue installation of laboratory equipment in Lao PDR, Cambodia, and Vietnam	Laboratory
Conduct Biorisk Management workshops in Philippines and Indonesia and fill identified gaps	Human Resources	Install laboratory equipment in Philippines and Indonesia	Laboratory
Continue Biorisk Management workshops in Lao PDR, Cambodia, and Vietnam	Laboratory	Initiate lab management training in Philippines and Indonesia	Laboratory
Initiate the development and implementation of BS&S Standard Operating Procedures in Lao PDR, Cambodia, and Vietnam	Laboratory	Introduce EIDSS and PACS to human and vet ministries in Philippines	Surveillance
Former Soviet Union		Continue laboratory management training in Cambodia and Vietnam	Laboratory
Africa		Conduct laboratory management training in Lao PDR	Laboratory
Middle East and South Asia		Complete laboratory diagnostic training/capacity building activity in Cambodia	Laboratory
Southeast Asia			

Table 15. CBEP: Analysis of FY2015 Requested Projects to IHR Core Capacities[195]

As evident in Table 15, CBEP aligns greatly with the laboratory and surveillance IHR core capacities. For FY2015, the proposed activities are spread out globally, minus South America. CBEP, like AFHSC-GEIS, is distinct in that it has stated objectives to assist partner states to meet their obligations towards IHR compliance.[196] The program also uses numerous partners like the Center for Disaster and Humanitarian Assistance Medicine (CDHAM) and the DOD overseas laboratories to execute its activities.[197]

F. HOW TO USE THE DATA

DOD global health activities are diverse and complex. Most activities involve numerous organizations and are dependent upon outside organizations to execute mission

[195] Ibid., CTR1169-72.

[196] Center for Disaster and Humanitarian Assistance Medicine, "Cooperative Biological Engagement Program (CBEP)," Uniformed Services University of Health Sciences, accessed October 2, 2014, http://www.cdham.org/cooperative-biological-engagement-program-pakistan.

[197] Ibid.

goals or objectives. The analysis reveals that the military service departments own the preponderance of assets that align to building IHR core capacities. Primarily these are organizations under the U.S. Army and Navy. DTRA, however, under the OSD and through the CBEP, also greatly contributes to IHR compliance with regards to the laboratory core capacity. DTRA builds global laboratory capacity and capability through the construction of Central Reference Laboratories (CRL), installation of laboratory equipment, initiation of training programs, and execution of security upgrades.

It appears that all DOD global health programs and organizations analyzed are involved with building laboratory partner capacity. The DOD has the unique assets of the overseas laboratories that are essential with these activities. The DOD laboratories also assist AFHSC-GEIS in conducting surveillance activities with partner states. Out of the programs analyzed, AFHSC-GEIS most align to building surveillance core capacities in partner states.

The analysis in this chapter is meant to identify the organizations and programs that can assist WHO member states achieve IHR compliance. IHR compliance is not the primary objective for any of the organizations and programs; therefore, this analysis is not meant as a critique of the DOD organizations and programs. Instead, by illustrating how the DOD organizations and programs build IHR core capacities abroad either directly or indirectly, then those efforts could expand or contract based on actual IHR compliance data.

Authors have argued that laboratory services are the "Achilles heel" of IHR compliance in the developing world and resources have followed accordingly; however, based on WHO member state reporting it appears national legislation and preparedness are core capacities least in compliance.[198] Table 16 displays IHR compliance rates in Africa for 2013. The averages for each core capacity are located in the last row. Laboratory and surveillance rank first and second respectively. This may provide evidence that DOD and USG efforts are working in Africa, but also may signify a needed

[198] Ruth Berkelman, Gail Cassell, Steven Specter, Margaret Hamburg, and Keith Klugman, "The 'Achilles' Heel of Global Efforts to Combat Infectious Diseases, *Clinical Infectious Disease* 42, no. 10 (2006), 1503-1504, doi: 10.1086/504494.

shift in focus. None of the programs analyzed aligned against the IHR core capacity for national legislation, policy, and financing. Most likely, this is due to DOD being ill-suited as an organization to address or assist partner states in crafting national laws, regulations, and policy for sufficient IHR implementation.

With regards to preparedness, AFHSC-GEIS had the most amount of outputs aligned to that core capacity. Most of these outputs were under the program's strategic goal for research, innovation, and integration. The activities largely included mapping or predicting national health risks. Due to the low IHR compliance rates in preparedness, the DOD could increase these efforts to increase compliance rates.

Country	Status	Core Capacity	Status	Core Capacity	Status	Core Capacity	Status	Core Capacity	Status	Core Capacity	Status	Core Capacity	Status	Core Capacity	Status	Core Capacity
Botswana	0	Legislation	10	Coordination	70	Surveillance	52	Response	0	Preparedness	29	Risk communication	20	Human resources	81	Laboratory
Burkina Faso	100	Legislation	80	Coordination	65	Surveillance	87	Response	45	Preparedness	43	Risk communication	60	Human resources	86	Laboratory
Burundi	0	Legislation	73	Coordination	100	Surveillance	82	Response	50	Preparedness	57	Risk communication	0	Human resources	41	Laboratory
Cameroon	100	Legislation	100	Coordination	85	Surveillance	94	Response	100	Preparedness	100	Risk communication	100	Human resources	100	Laboratory
Central African Republic	0	Legislation	0	Coordination	40	Surveillance	47	Response	16	Preparedness	14	Risk communication	40	Human resources	43	Laboratory
Chad	25	Legislation	30	Coordination	75	Surveillance	59	Response	8	Preparedness	57	Risk communication	20	Human resources	41	Laboratory
Comoros	0	Legislation	46	Coordination	65	Surveillance	22	Response	25	Preparedness	14	Risk communication	50	Human resources	41	Laboratory
Congo	0	Legislation	26	Coordination	37	Surveillance	28	Response	16	Preparedness	43	Risk communication	0	Human resources	71	Laboratory
C?te d'Ivoire	100	Legislation	100	Coordination	100	Surveillance	94	Response	50	Preparedness	100	Risk communication	100	Human resources	100	Laboratory
Democratic Republic of the Congo	50	Legislation	46	Coordination	85	Surveillance	70	Response	60	Preparedness	100	Risk communication	40	Human resources	100	Laboratory
Equatorial Guinea	25	Legislation	20	Coordination	35	Surveillance	55	Response	8	Preparedness	14	Risk communication	60	Human resources	80	Laboratory
Eritrea	50	Legislation	100	Coordination	80	Surveillance	94	Response	45	Preparedness	29	Risk communication	60	Human resources	86	Laboratory
Gambia	25	Legislation	66	Coordination	85	Surveillance	59	Response	63	Preparedness	71	Risk communication	0	Human resources	96	Laboratory
Ghana	75	Legislation	73	Coordination	85	Surveillance	88	Response	51	Preparedness	43	Risk communication	40	Human resources	100	Laboratory
Kenya	50	Legislation	100	Coordination	85	Surveillance	83	Response	53	Preparedness	57	Risk communication	40	Human resources	96	Laboratory
Lesotho	100	Legislation	90	Coordination	65	Surveillance	76	Response	36	Preparedness	86	Risk communication	40	Human resources	96	Laboratory
Madagascar	0	Legislation	36	Coordination	55	Surveillance	34	Response	41	Preparedness	14	Risk communication	40	Human resources	59	Laboratory
Mauritius	75	Legislation	83	Coordination	55	Surveillance	77	Response	20	Preparedness	43	Risk communication	40	Human resources	51	Laboratory
Mozambique	0	Legislation	73	Coordination	90	Surveillance	94	Response	43	Preparedness	43	Risk communication	100	Human resources	39	Laboratory
Niger	100	Legislation	36	Coordination	68	Surveillance	94	Response	80	Preparedness	100	Risk communication	20	Human resources	96	Laboratory
Nigeria	25	Legislation	83	Coordination	75	Surveillance	58	Response	45	Preparedness	57	Risk communication	20	Human resources	61	Laboratory
Rwanda	0	Legislation	16	Coordination	80	Surveillance	72	Response	8	Preparedness	57	Risk communication	40	Human resources	96	Laboratory
Sao Tome and Principe	0	Legislation	46	Coordination	40	Surveillance	28	Response	8	Preparedness	14	Risk communication	0	Human resources	36	Laboratory
Seychelles	0	Legislation	73	Coordination	95	Surveillance	88	Response	8	Preparedness	43	Risk communication	40	Human resources	96	Laboratory
South Africa	75	Legislation	73	Coordination	80	Surveillance	88	Response	83	Preparedness	100	Risk communication	50	Human resources	91	Laboratory
South Sudan	100	Legislation	46	Coordination	75	Surveillance	51	Response	90	Preparedness	71	Risk communication	100	Human resources	29	Laboratory
Swaziland	0	Legislation	36	Coordination	65	Surveillance	71	Response	0	Preparedness	86	Risk communication	60	Human resources	67	Laboratory
Togo	0	Legislation	83	Coordination	90	Surveillance	94	Response	80	Preparedness	0	Risk communication	80	Human resources	67	Laboratory
Uganda	100	Legislation	100	Coordination	80	Surveillance	81	Response	80	Preparedness	100	Risk communication	40	Human resources	100	Laboratory
United Republic of Tanzania	50	Legislation	40	Coordination	75	Surveillance	76	Response	16	Preparedness	57	Risk communication	60	Human resources	69	Laboratory
Zambia	100	Legislation	100	Coordination	95	Surveillance	94	Response	100	Preparedness	100	Risk communication	100	Human resources	100	Laboratory
Average Compliance:	42.74		60.774		73.387		70.65		42.839		56.19		47.1		74.68	

Table 16. Africa 2013 IHR Compliance Data[199]

[199] WHO, "International Health Regulations (2005) Monitoring Framework: All Capacities Data by Country."

IV. CDC GLOBAL HEALTH PROGRAMS

The CDC mission statement pledges to work "24/7 to keep Americans safe from health threats—whether from the U.S. or abroad, whether from infectious or non-communicable diseases, or from other causes."[200] The organization carries out its mission with three priorities: improving health security at home and around the world; reducing the leading causes of illness, injury, disability, and death; and strengthening collaboration between public health and healthcare providers.[201] As seen from both the mission and priorities, the CDC has a global health role. Increasingly, the CDC has sought to increase IHR compliance as part of that global health role.

A. BACKGROUND

The CDC was derived from a previous organization—the Malaria Control in War Areas (MCWA), which operated under the U.S. Public Health Service during WWII. In 1946, renamed and reestablished as the CDC, the Communicable Disease Center expanded efforts to combat all communicable diseases with an emphasis to assist local state health departments. The CDC grew in the late 1950s and the 1960s from the acquisition of other organizations like the Foreign Quarantine Service and the venereal disease program. CDC's name changed, but not the acronym, to the Center for Disease Control in 1970, then to the Centers for Disease Control and Prevention in 1992.[202]

From its inception, the CDC expanded to include global efforts for disease control. In 1957, the CDC sent staff overseas for the first time to respond to an epidemic of cholera and smallpox in Southeast Asia.[203] By 1966, the CDC began working with

---

[200] Centers for Disease Control and Prevention, "2009–2012 Accomplishments CDC: Saving Lives and Protecting People," U.S. Department of Human Health and Services, last modified April 26, 2013, http://www.cdc.gov/about/organization/accomplishments.html.

[201] Centers for Disease Control and Prevention, "Letter from the Director," last modified August 15, 2014, http://www.cdc.gov/about/report/2013/director.html.

[202] "Historical Perspectives History of CDC," *Morbidity and Mortality Weekly Report (MMWR)* 45, no. 20 (1996), 526–530, http://www.cdc.gov/mmwr/preview/mmwrhtml/00042732.htm.

[203] Centers for Disease Control and Prevention, "CDC: 60 Years of Excellence," accessed October 7, 2014, http://www.cdc.gov/about/pdf/resources/timelinefoldout.pdf.

USAID to eradicate smallpox and measles globally.[204] The Center for Global Health was established in 2010, as a division within CDC, to coordinate and execute the CDC global health strategy.[205]

B. ORGANIZATION

The CDC serves as one of the eleven operating division under the U.S. Department of Human Health and Services.[206] The CDC, itself, has numerous Centers, Institutes, and Offices (CIOs) under its leadership. Each CIO has a particular specialty or expertise that the CDC uses to divide task and responsibilities to deal with health concerns.[207] The Center for Global Health serves as the lead CIO to deal with global health and security and coordinates the activities of the other CIOs when dealing with global health issues. Figure 8 illustrates the CIOs that operate under the Director of the CDC's leadership.

[204] Ibid.

[205] Office of the Director, Center for Global Health, *CDC Global Health Strategy: 2012–2015* (Atlanta: Center for Disease Control and Prevention, 2012), 3, http://www.cdc.gov/globalhealth/strategy/pdf/CDC-GlobalHealthStrategy.pdf.

[206] "HHS Family of Agencies," U.S. Department of Health and Human Services, accessed October 7, 2014, http://www.hhs.gov/about/foa/index.html.

[207] Centers for Disease Control and Prevention, "CDC Organization," U.S. Department of Health and Human Services, last modified April 14, 2014, http://www.cdc.gov/about/organization/cio.htm.

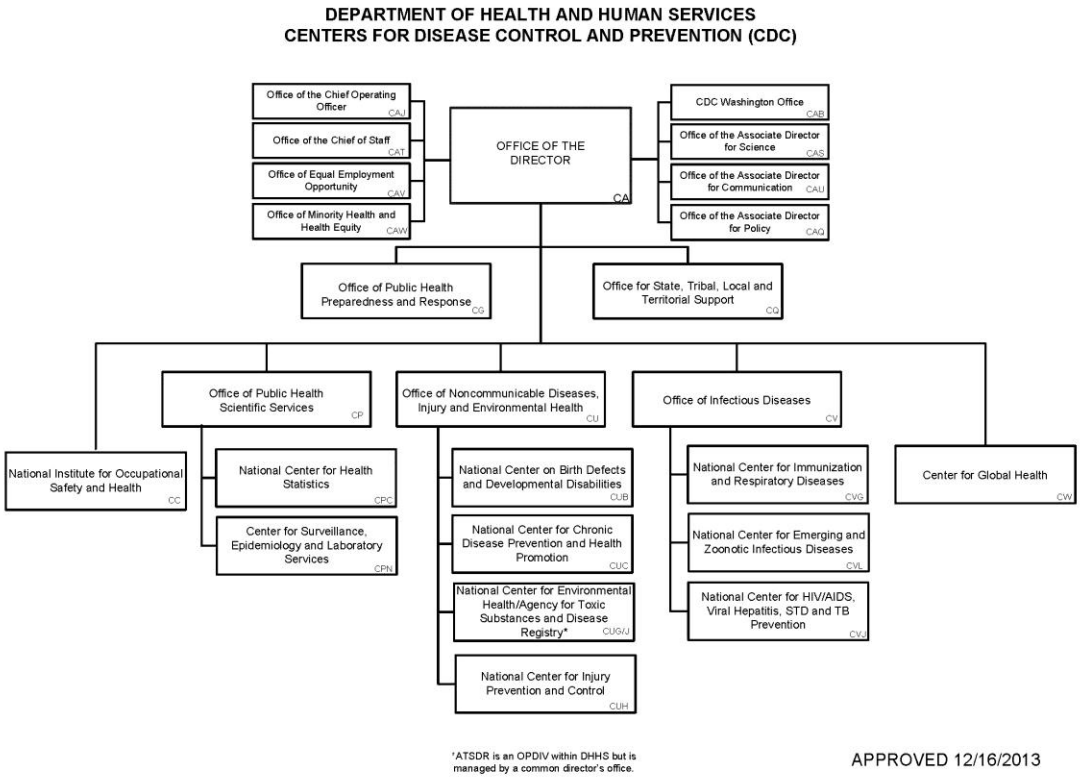

Figure 8. CDC: Organizational Chart[208]

The mission of the Center for Global Health is to "protect and improve health globally through science, policy, partnership, and evidence-based public health action."[209] Through the execution of its mission, the Center for Global Health hopes to accomplish four goals globally: improve health impact, enhance health security, increase public health capacity, and maximize organizational capacity.[210] The center operates in over 50 countries and has over 40 staff assigned to international organizations.[211] Figure 9 illustrates where the Center for Global Health operates.

---

[208] Centers for Disease Control and Prevention, "Centers for Disease Control and Prevention: Official Chart," U.S. Department of Human Health and Services, December 16, 2013, http://www.cdc.gov/maso/pdf/CDC_Official.pdf.

[209] Office of the Director, Center for Global Health, *CDC Global Health Strategy: 2012–2015*, 10.

[210] Ibid., 5.

[211] Centers for Disease Control and Prevention, "Where We Work," last modified July 1, 2014, http://www.cdc.gov/globalhealth/countries/default.htm.

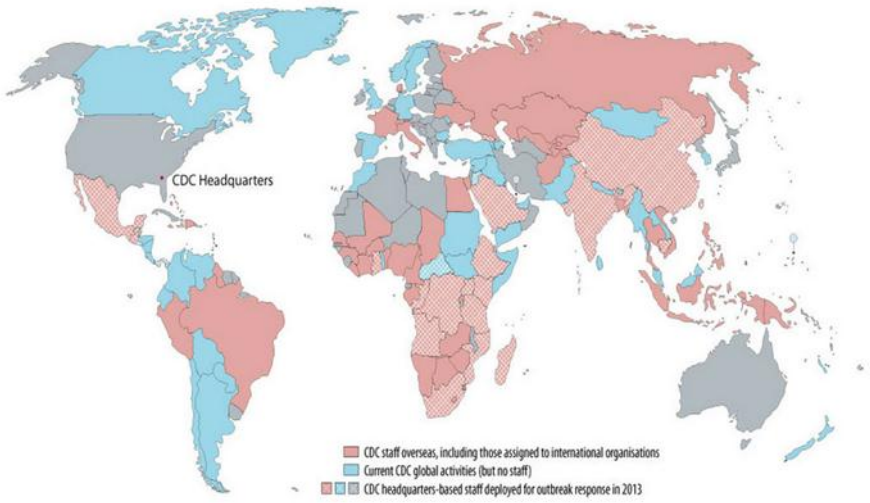

Figure 9. CDC: Global Health Activities Map[212]

The Center for Global Health has four subordinate divisions: Division of Global HIV/AIDS, Division of Parasitic Diseases and Malaria, Global Immunization Division, and the Division of Global Health Protection. Figure 10 depicts the organizational structure with the divisions and their supporting branches. The Division of Global HIV/AIDS provides technical assistance to partner states to implement HIV/AIDS prevention, treatment, and care services and systems, which includes enhanced public health systems and laboratory services. The Division of Parasitic Disease and Malaria carries out activities for the prevention and control of parasitic diseases. The combating of vaccine-preventable diseases is carried out by the Global Immunizations Division. Finally, the Division of Global Health Protection aims to build public health capacity that supports global health security. This support to global health security involves leading and coordinating activities with WHO when concerning IHR core capacities development.[213]

[212] Ibid.

[213] Centers for Disease Control and Prevention, "Center for Global Health: Mission Statement," April 19, 2010, http://www.cdc.gov/maso/pdf/CGHfs.pdf.

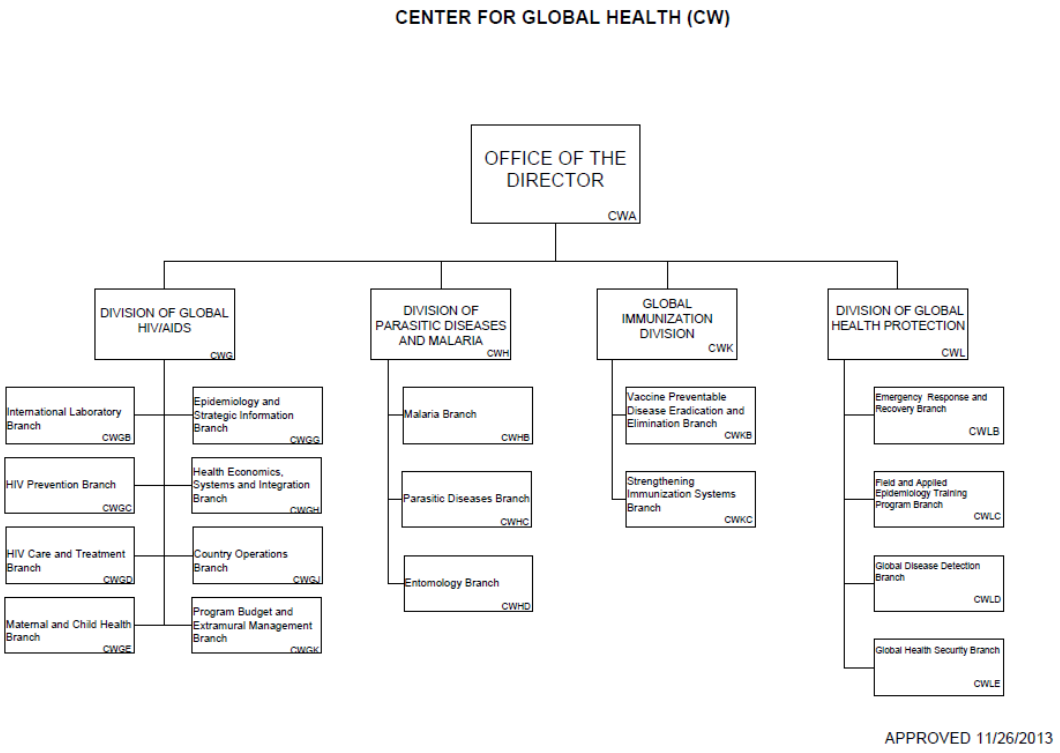

Figure 10. Center for Global Health: Organizational Chart[214]

C. METHODOLOGY FOR ANALYSIS

An analysis of how CDC global health programs can support or do support IHR core capacities will be broken down by strategic goal and their achievements. The lists of achievements originate from the CDC's *2012 Annual Progress Report*. By identifying the achievements by strategic goal and WHO IHR core capacities, a greater understanding of which IHR core capacities are supported or enhanced will be understood.

D. LIMITATIONS

The analysis of the CDC's efforts that align to the IHR core capacities will be constrained to those from the Center for Global Health. This limitation exists to limit the scope of research, as that particular CIO is responsible for leading and coordinating all

[214] Centers for Disease Control and Prevention, "Center for Global Health: Official Chart," U.S. Department of Human Health and Services, November 26, 2013, http://www.cdc.gov/maso/pdf/CGH.pdf.

global efforts within the CDC. As acknowledged by CDC, the lists of achievements are not all inclusive; however, it will provide a large enough sample of the accomplishments within a one year time frame to gain a greater understanding of how the CDC can be involved with increasing WHO member state IHR core capacities. Also, the CDC's *2012 Annual Progress Report* does not breakdown the accomplishments by divisions under the Center for Global Health; instead, the achievements are broken down by strategic goal. Multiple divisions and branches are involved with the activities under each strategic goal.

E. GOALS, FUNDING, AND ANALYSIS

The activities selected in this section represent the achievements accomplished by the CDC's Center for Global Health that either support or align to building IHR core capacities abroad. These achievements are divided by CDC's global health strategic goals and not by organizational structure; furthermore, the budget requested in FY2015 for the Center for Global Health does not directly align programs to the global health strategy. Instead, the budget reflects the organizational structure for the Center for Global Health, and specific efforts within each division must fit within the greater strategy. Table 17 displays the FY2015 CDC Congressional Budget Justification (CBJ) request.

CDC FY 2015 Congressional Justification

GLOBAL HEALTH

(dollars in millions)	FY 2013 Final[1]	FY 2014 Enacted	FY 2015 President Budget	2015 +/-2014
Budget Authority	$362.792	$416.801	$464.301	+$47.500
Total Request	**$362.792**	**$416.801**	**$464.301**	**+$47.500**
FTEs	1,005	1,005	1,005	0
Global HIV/AIDS	**$125.254**	**$128.735**	**$128.735**	**$0.000**
Global Immunization	**$159.469**	**$200.892**	**$210.892**	**+$10.000**
-Polio Eradication	$110.346	$150.928	$160.928	+$10.000
-Global Measles and Other Vaccine-Preventable Diseases	$49.123	$49.964	$49.964	$0.000
Parasitic Diseases and Malaria	**$23.725**	**$24.421**	**$24.421**	**$0.000**
Global Public Health Protection	**$54.344**	**$62.753**	**$100.253**	**+$37.500**
-Global Disease Detection and Emergency Response	$44.839	$45.470	$45.470	$0.000
-Global Public Health Capacity Development	$9.505	$17.283	$9.783	-$7.500

[1] FY 2013 levels have been made comparable to FY 2014 Enacted to reflect the permanent realignment of the BSS budget line.
[2] FY 2013 and FY 2014 amounts are comparable to FY 2015 to account for the Center for Global Health reorganization.

Table 17. CDC Global Health Budget: FY2015[215]

The FY2015 CBJ outlines four budgeted program areas: global HIV/AIDS, global immunizations, parasitic diseases and malaria, and global public health protection. The budget for the Center for Global Health has increased from its inception in 2010 by over $100 million. The budget requested in FY2015 increased by $47.5 million from the previous year, with the largest increase going towards global public health protection activities. While the largest portion of the budget goes towards global immunizations, global public health protection has increased its overall share of the budget by six percent since FY2013.[216]

The new global public health protection activities will support the new Global Health Security Agenda launched on February 13, 2014.[217] Based on the Global Health Security Agenda, the U.S. committed to working with a minimum of 30 partner countries

[215] U.S. Department of Health and Human Services [HHS], *FY2015 CDC Justification of Estimates for Appropriation Committees*, 284, http://www.cdc.gov/fmo/topic/Budget%20Information/index.html.

[216] Ibid.

[217] Ibid., 298.

to advance their health systems in order to prevent, detect, and respond to infectious diseases in accordance with IHR.[218] More specifically, the

> CDC will partner with up to ten countries to create sustainable programs that increase leadership capacity and provide the resources necessary to manage emerging threats, enhance early detection, improve confirmation, and ensure highly effective responses to global epidemics and other public health catastrophes.[219]

While the expansion in global health security will increase the support activities aligned with IHR core capacities, many of the achievements accomplished in 2012 clearly align. These aligned achievements prescribe to three of the four strategic goals of the CDC global health strategy: health impact, health security, and health capacity. It appears that the organizational divisions and program budgets for Global Health Protection and Global HIV/AIDS execute the preponderance of these aligned activities.

1. Health Impact

Improved health impact involves all activities that aim to directly improve the health and wellbeing of individuals abroad.[220] The strategic goal encompasses eight lines of effort that involve all divisions under the Center for Global Health. It appears that all four divisions have supporting lines of effort and achievements. The lines of effort, the aligned achievements, and the supported IHR core capacities under the health impact strategic goal are shown in Table 18. As seen in Table 18, health impact most aligns with the IHR response core capacity.

---

[218] U.S. Department of Health and Human Services, "US Commitment to the Global Health Security Agenda: Toward a World Safe and Secure from Infectious Disease Threats," The Global Health Security Agenda, accessed June 9, 2014, http://www.globalhealth.gov/global-health-topics/global-health-security/ghsagenda.html.

[219] HHS, *FY2015 CDC Justification*, 299.

[220] Centers for Disease Control and Prevention [CDC], *CDC Global Health Strategy (2012–2015): 2012 Annual Progress Report* (Atlanta: Centers for Disease Control and Prevention, 2014), 1, http://www.cdc.gov/globalhealth/strategy/pdf/2012-gh-strategy-and-annual-report-summary.pdf.

Goal 1: Health Impact		
Achievements under supporting Lines of Effort	**Core Capacity (component)**	**Core Capacity (component)**
1.1: Prevent New Infections and Serve the Needs of HIV Positive Individuals Globally		
Provided leadership for costing and modeling of treatment scale-up and implementation of the Track 1.0 Antiretroviral Treatment (ART) program, including transitioning programs to local partners in all 13 Track 1.0 ART countries in sub-Saharan Africa.	Preparedness- Risk and Resource Management	Response- Case Management
Provided leadership, technical assistance, and support in the implementation and monitoring of Option B+, an innovative strategy to prevent mother-to-child transmission (PMTCT) of HIV and improve mothers' health. The number of pregnant and breastfeeding women started on antiretroviral therapy through Option B+ in Malawi totaled 10,663, an increase of 748%.	Preparedness- Risk and Resource Management	Response-Case Management
Worked with 45 Ministries of Health to build their technical and operational capacity for leading and sustaining their national responses. CDC's approach is to carefully transition programmatic and financial responsibilities to host governments and local partners over time.	National Legislation- Policy and Financing	Coordination and NFP Communication- IHR Coordination, Communication and Advocacy
1.2: Reduce Tuberculosis Morbidity and Mortality		
Assisted more than 30 Ministries of Health in evaluating and strengthening national TB programs and TB/HIV surveillance systems, and led development of global standards for monitoring and evaluation through the WHO Global Task Force on TB Impact Measurement.	Coordination and NFP Communication- IHR Coordination, Communication and Advocacy	Surveillance- Event Based Surveillance
Trained laboratorians from 27 countries in TB diagnostics and strengthened laboratory management systems in eight countries in accordance with WHO, CDC, and regional standards to help national laboratories achieve accreditation.	Laboratory- Diagnostic and Confirmation Capacity/Policy and Coordination of Laboratory Services	
Led a study in nine countries to describe increased drug-resistant TB occurs, which informed WHO's New Global Framework, a re-envisioning of how WHO supports countries in achieving high quality drug-resistant TB programs.	Response- Infection Control	
Developed a TB infection control training and implementation package for use in HIV clinics, which is being rolled out widely in high HIV burden settings.	Response- Infection Control	
Established regional Centers of Excellence for infection control in Eastern Europe and East Africa and has assisted 16 countries in developing and implementing TB infection control guidelines.	Response- Infection Control	
1.3: Reduce Malaria Morbidity and Mortality		
Provided technical guidance to program the procurement and distribution of 32 million insecticide-treated bed nets, 29 million malaria rapid diagnostic tests, and 73 million doses of antimalarial combination treatment in PMI focus countries. Also, conducted global product testing to ensure that donors and malaria control programs can procure quality diagnostic tests.	Response- Disinfection, Decontamination and Vector Control	Preparedness-Risk and Resource management for IHR Preparedness
Protected 30 million people from malaria through indoor residual insecticide spraying.	Response- Disinfection, Decontamination and Vector Control	
Provided direct technical assistance to vector control programs in 19 PMI focus countries as well as endemic countries in Latin America and the Greater Mekong Subregion.	Response- Disinfection, Decontamination and Vector Control	
Provided training to 12 visiting scientists from endemic countries, 3 Epidemic Intelligence Service Officers, and 2 Association of Schools of Public Health Fellows.	Human Resources- Human Resource Capacity	
1.4: Reduce Maternal and Perinatal Mortality		
Provided support to the Roll Back Malaria (RBM) Malaria in Pregnancy working group which works with eight priority sub-Saharan countries to develop and implement country action plans to improve uptake of IPTp.	Response- Case Management	
1.5: Reduce Child Morbidity and Mortality		
Conducted or supported surveillance for influenza in more than 45 countries, including 10 countries that set up procedures for real-time testing for multiple respiratory pathogens.	Surveillance- Indicator and Event-Based Surveillance	
1.6: Eliminate and Control Targeted Neglected Tropical Diseases		
Completed the first round of Mass Drug Administration (MDA) in Haiti, reaching 2.3 million people, helping Haiti achieve nationwide coverage of MDA for lymphatic filariasis for the first time. The MDA was followed by an intensive CDC-supported evaluation to assess coverage, which found that additional emphasis needed to be put on social mobilization to ensure high participation rates.	Response- Disinfection, Decontamination and Vector Control	
1.7: Control, Eliminate, or Eradicate Vaccine-Preventable Diseases		
Engaged in successful efforts to strengthen the capacity of health systems to deliver routine immunization services in Democratic Republic of the Congo, Ethiopia, Haiti, India, Nigeria, South Sudan, and Uganda.	Preparedness- Risk and Resource Management	
Organized, through the Surveillance en Afrique Centrale (SURVAC) project, workshops to build national capacity and to reinforce sentinel surveillance for bacterial meningitis and rotavirus gastroenteritis.	Surveillance- Indicator Based Surveillance	
Conducted surveillance activities to monitor the impact of MenAfriVac, an initiative covering many countries in sub-Saharan Africa's meningitis belt.	Surveillance- Indicator Based Surveillance	
1.8: Reduce Burden of Non-Communicable Diseases		
Developed and piloted 24 training modules on NCD topics for the Field Epidemiology Training Program (FETP), which were used in workshops in China, Thailand, Colombia, Jordan, and Tanzania.	Human Resources- Human Resource Capacity	

Table 18. CDC: Health Impact Goals Aligned to IHR Core Capacities[221]

[221] CDC, *CDC Global Health Strategy (2012–2015): 2012 Annual Progress Report*, 3–18; WHO, "IHR Core Capacity Monitoring Framework," 26–55.

2. Health Security

Health security encompasses the efforts of CDC working with partnered states and organizations to improve the ability of states "to prepare for and respond to disease threats on a global scale."[222] In 2012 alone, CDC partnered with 81 states to improve global health security. Activities included supporting Emergency Operation Centers (EOC) development, disease detection, and outbreak response.[223] It appears that the Division of Global Health Protection through its programed budget for global public health protection executes the preponderance of achievements aligned with IHR core capacities—more specifically the Global Disease Detection Branch. Based on the achievements outlined in 2012, the goal for enhanced health security best supports the response IHR core capacity. Not surprisingly, these achievements that align to response are predominantly under the line of effort—2.2 Response to International Public Health Emergencies and Improve Country Response Capabilities. The lines of effort, the aligned achievements, and the supported IHR core capacities under the health security strategic goal are shown in Table 19.

[222] CDC, *CDC Global Health Strategy (2012–2015): 2012 Annual Progress Report*, 2.

[223] Ibid.

Goal 2: Health Security		
Achievements under supporting Lines of Effort	**Core Capacity (component)**	**Core Capacity (component)**
2.1: Strengthen Capacity to Prepare for and Detect Infectious Diseases and Other Emerging Health Threats		
Provided support to more than 20 countries to support Emergency Operations Center (EOC) development, exercise development and training in emergency operations, incident command systems, and emergency risk communications.	Response- Rapid Response Capacity	Coordination and NFP Communications- IHR Coordination, Communication, and Advocacy
Identified 122 new outbreaks via event-based surveillance and supported cross-agency Epi-Aids to 19 outbreaks in 16 countries in 2012, through the Global Disease Detection Operations Center.	Surveillance-Event Based Surveillance	
Supported global health security planning in Kenya, Uganda, Tanzania, Georgia, and Kazakhstan.	Preparedness- Public Health Emergency Preparedness and Response	
Worked to improve the capacity of laboratories worldwide to detect unusual pathogens by improving their capacity to accurately identify their endemic pathogens. Efforts in 2012 supported laboratories in Armenia, Egypt, Georgia, India, Republic of Korea, Uganda, and Zimbabwe.	Laboratory- Laboratory Diagnostic and Confirmation Capacity	
Built lab capacity, in Uganda, to identify viral hemorrhagic and vector-borne viruses and plague. In Indonesia, it built the country's first lab capable of the molecular diagnosis of emerging viruses.	Laboratory- Laboratory Diagnostic and Confirmation Capacity	
Worked in Ethiopia, Kenya, Somalia, Haiti, South Sudan, and Syria to improve the detection of disease in vulnerable populations.	Laboratory- Laboratory Diagnostic and Confirmation Capacity	
Partnered with the Ministry of Health, in Haiti, and the International Centre for Diarrheal Disease Research (Bangladesh) to train more than 500 clinical staff on the clinical management of cholera.	Response- Case Management	
Worked in Democratic Republic of the Congo, Georgia, Azerbaijan, Indonesia, Kazakhstan, Kenya, Thailand, Uganda, and Ukraine to improve methods to detect and prevent emerging pathogens that result from social and demographic trends that increase human contact with animals, vectors, and poor sanitation.	Preparedness- Risk and Resource Management	Response- Disinfection, Decontamination, and Vector Control
Supported the 2012 establishment of the Zoonotic Disease Unit (ZDU) in Kenya, which successfully responded to an outbreak of Human African Trypanosomiasis, and established the burden of zoonotic bacteria as causes of chronic heart disease in Thailand. (IHR Hazard- Zoonotic events)		
2.2: Respond to International Public Health Emergencies and Improve Country Response Capabilities		
Provided assistance in responding to 209 outbreaks through the Global Disease Detection Centers worldwide; of these, 140 (67%) were responded to in less than 24 hours.	Response- Rapid Response Capacity	
Deployed staff to Georgia to strengthen anthrax disease surveillance, identify risk factors, and improve health education.	Risk Communication- Policy and Procedures for Public Communications	Surveillance- Indicator Based
Responded to outbreaks of cholera in Democratic Republic of Congo (DRC) and Sierra Leone, strengthening disease surveillance in DRC neighborhoods affected by munitions explosions and in sites for internally displaced persons.	Response- Rapid Response Capacity	
Investigating an increase in gastroenteritis-associated deaths among children under five in Botswana.	Response- Rapid Response Capacity	
Provided support for laboratory capacity development in response to outbreaks of Ebola in Democratic Republic of the Congo and Uganda.	Response- Rapid Response Capacity	Laboratory- Laboratory Diagnostic and Confirmation Capacity
Supported the first international conference on nodding syndrome in conjunction with outbreak responses in South Sudan, Tanzania, and Uganda.	Preparedness- Public Health Emergency Preparedness and Response	
Assisted the Kingdom of Saudi Arabia in the investigation of the first identified novel coronavirus case, the virus was later named Middle East Respiratory Syndrome coronavirus (MERS-CoV).	Response- Rapid Response Capacity	

Table 19. CDC: Health Security Goals Aligned to IHR Core Capacities[224]

3. Public Health Capacity

The goal to increase public health capacity involves working with partnered states to build, strengthen, and maintain the capacity to improve health impact for their own citizens. CDC primarily accomplishes this goal by assisting partnered states National Public Health Institutes, building workforce capacity through the Field Epidemiology

224 CDC, *CDC Global Health Strategy (2012–2015): 2012 Annual Progress Report*, 19–22; WHO, "IHR Core Capacity Monitoring Framework," 26-55.

Training Program (FETP), and strengthening the laboratory capacity and capability globally.[225] Human resources and laboratory are the most supported IHR core capacity under this strategic goal. While it appears that the Division for Global Health Protection and Global HIV/AIDS are involved with the majority of achievements, the FETP in particular is attributable for the preponderance of human resource achievements. This program operates under the Division for Global Health Protection. Table 20 shows the lines of effort, the aligned achievements, and the supported IHR core capacities under the public health capacity strategic goal.

[225] CDC, *CDC Global Health Strategy (2012–2015): 2012 Annual Progress Report*, 2.

Goal 3: Health Capacity	
Achievements under supporting Lines of Effort	**Core Capacity (component)**
3.1: Strengthen Public Health Institutions and Infrastructure	
Supported Rwanda's Institute for HIV/AIDS, Disease Prevention and Control to strengthen organizational performance.	Coordination and NFP Communications- IHR Coordination, Communication, and Advocacy
Strengthened the Public Health Institute of Malawi.	Coordination and NFP Communications- IHR Coordination, Communication, and Advocacy
Supported India's National Center for Disease Control in its efforts to streamline public health data collection and to improve scientific reporting.	Coordination and NFP Communications- IHR Coordination, Communication, and Advocacy
Supported the government of Kenya establishing a One Health (OH) office to bridge the ministries of livestock and human health.	Coordination and NFP Communications- IHR Coordination, Communication, and Advocacy (IHR Hazard- Zoonotic Events)
3.2: Improve Surveillance and the Use of Strategic Information	
Supported the development of country capacity to implement the International Health Regulations (2005), which includes disease surveillance and dissemination of surveillance information. In 2012, 28 (61%) of 46 African countries reported regular dissemination of surveillance feedback bulletins. Eight (28%) of these countries include district-level information in their dissemination.	Surveillance- Indicator Based
3.3: Build Workforce Capacity	
Supported the establishment of two new training programs—India's Epidemic Intelligence Service and Yemen's FETP.	Human Resources- Human Resource Capacity
Supported 25 FETPs with 229 graduates. FETP residents in programs conducted 408 outbreak investigations, planned 190 studies, engaged in 447 surveillance activities, and presented 156 presentations at national and international public health conferences.	Human Resources- Human Resource Capacity
Supported short epidemiology training courses in Haiti, Laos, Cambodia, and South Sudan. In 2012, these programs supported 64 trainees and 24 graduates.	Human Resources- Human Resource Capacity
Supported preservice training for 8,742 health care workers in support of the President's Emergency Plan for AIDS Relief (PEPFAR).	Human Resources- Human Resource Capacity
Collaborated with WHO and the Nigerian Federal MOH, as part of PEPFAR, to launch a national human resource information system and a registry of the national health workforce.	Human Resources- Human Resource Capacity
Implemented, as part of PEPFAR, a four-year initiative to improve HIV service delivery by strengthening nursing and midwifery leadership, policy, and regulation. The African Health Professions Regulatory Collaborative is a south-to-south learning collaborative that convenes nursing leadership teams from MOHs, regulatory bodies, professional associations, and academic sectors to build the nursing workforce in 17 countries in east, central, and southern Africa.	Human Resources- Human Resource Capacity
Provided training opportunities to CDC's HIV/AIDS prevention research teams in Botswana, Kenya, and Thailand which allows them to find new opportunities for work in the healthcare systems of their respective countries following the completion of the CDC studies.	Human Resources- Human Resource Capacity
Established a One Health fellowship for graduating veterinarian epidemiologists, as part of FETP, which graduated its first class in 2012, including six health professionals from Kenya and Uganda.	Human Resources- Human Resource Capacity
Trained and selected FETP residents to form a Stop Transmission of Polio (STOP) team to support the country's 2012 polio eradication emergency plan.	Response-Rapid Response Capacity
3.4: Strengthen Laboratory Systems and Networks	
Supported the formation of the African Society for Laboratory Medicine (ASLM), as part of PEPFAR. ASLM aspires to increase the visibility and professional integrity of laboratories on the African continent. CDC works with ASLM on the development of national laboratory strategic plans and supports advocacy for regional laboratory accreditation bodies on the continent.	Laboratory- Policy and Coordination of Laboratory Services/Laboratory Diagnostic and Confirmation Capacity
Devised the Stepwise Laboratory Management towards Accreditation Training Program resulting in significant improvement of workforce performance in support of global HIV/AIDS and other public health programs.	Laboratory- Laboratory Diagnostic and Confirmation Capacity/Laboratory Based Surveillance
Continued to provide short, practical laboratory courses (five days or more) both in Atlanta and overseas to improve laboratory workforce capacity, and to encourage ministries of health to establish leadership positions for ministry laboratory programs.	Human Resources- Human Resource Capacity
Developed innovative assays for public health surveillance and laboratory diagnosis of a broad range of infectious diseases found in resource poor settings, including Taqman Array Cards for respiratory and febrile illnesses, HIV incidence assays, and point-of-care tests for cryptococcal meningitis and syphilis.	Laboratory- Laboratory Diagnostic and Confirmation Capacity
Continued to maintain and expand global laboratory networks supporting vaccine preventable disease programs for polio, measles, rubella, rotavirus, influenza, and invasive bacterial infections to improve disease surveillance.	Laboratory- Laboratory Diagnostic and Confirmation Capacity/Laboratory Based Surveillance
Worked with ASLM and WHO/AFRO to develop the Stepwise Laboratory Improvement Process Towards Accreditation checklist to measure quality improvement in African laboratories while reducing the cost of formal accreditation preparedness. This approach has been modified and implemented in Central America, the Caribbean, and Southeast Asia.	Laboratory- Laboratory Diagnostic and Confirmation Capacity
Worked with WHO and Department of Defense to introduce laboratory quality management systems in Central Asia and the Caucasus, and with the Global Laboratory Initiative to design a program to improve the quality of national tuberculosis reference laboratories.	Laboratory- Laboratory Diagnostic and Confirmation Capacity/Laboratory Based Surveillance

Table 20. CDC: Health Capacity Goals Aligned to IHR Core Capacities[226]

[226] CDC, *CDC Global Health Strategy (2012–2015): 2012 Annual Progress Report*, 23–31; WHO, "IHR Core Capacity Monitoring Framework," 26-55.

4. Organizational Capacity

CDC's strategic goal of maximizing organizational capacity aims to increase the efficacy of CDC global programs. This goal is achieved through strengthening and integrating the organizational and technical capacity for global health activities, as well as increasing communication to internal and external stakeholders.[227] None of the achievements outlined in the *2012 Annual Progress Report* align to IHR core capacities, but it could be stated that these efforts support the greater global strategy.

F. HOW TO USE THE DATA

In 2012, the accomplishments executed and coordinated by the Center for Global Health mainly align to three IHR core capacities: response, laboratory, and human resources. The Global Health Protection and Global HIV/AIDS branches, which together account for 50 percent of the global health budget, carry out the vast majority of these aligned achievements. The analysis did not closely dissect where these global health activities take place or their impact, but Figure 9 illustrates that CDC conducts most of its activities in Africa, Asia, and South America.

Among the IHR core capacities, Table 21 confirms that WHO member states are most compliant in surveillance, response, and laboratory core capacities, however, human resources ranks last.

[227] CDC, *CDC Global Health Strategy (2012–2015): 2012 Annual Progress Report*, 2.

Ranking	IHR Compliance Average	IHR Core Capacity
1	61.63	Human resources
2	64.79	Preparedness
3	72.50	Legislation
4	73.68	Risk communication
5	75.44	Coordination
6	77.98	Laboratory
7	80.97	Response
8	82.20	Surveillance

Table 21. Global IHR Compliance Averages: 2013[228]

This indicates the human resource building activities and programs carried out by CDC as extremely valuable. No other agency has as many supported human resource activities. This should not undermine efforts that build response and laboratory capability and capacity abroad. Instead, it provides further evidence that laboratory and response building efforts are working, and these efforts should be better focused to states noncompliant in those capacities. The GDDER program, with a budget over $45 million, executed the majority of these response and laboratory achievements (see Table 17).

The efficacy of the human resource aligned programs can be analyzed with regards to FETP. Table 22 shows where current FETP state programs operate, which have reported graduates.

[228] WHO, "International Health Regulations (2005) Monitoring Framework: All Capacities Data by Country."

State (WHO Region)	2013 HR Compliance	2013 HR Regional Average
Haiti (AMR)	60	68
Yemen (EMR)	60	68.57
Egypt (EMR)	100	68.57
Iraq (EMR)	100	68.57
Pakistan (EMR)	60	68.57
Morroco (EMR)	100	68.57
China (WPR)	100	71.92
Vietnam (WPR)	80	71.92
*Ethiopia (AFR)	100	44
Tanzania (AFR)	60	44
Mozambique (AFR)	100	44
South Africa (AFR)	50	44
Kenya (AFR)	40	44
Rwanda (AFR)	40	44
Nigeria (AFR)	20	44
	71.33333333	57.51266667
* Ethiopia HR compliance data from 2012 data, no data reported in 2013		
	HR Compliance greater than 2013 Regional Average	
	HR Compliance less than 2013 Regional Average	

Table 22. CDC Supported FETP with Recorded Graduates: Human Resource Core Capacity Analysis[229]

The table reveals that the majority of states with FETP have human resource compliance rates much higher than regional and global averages. As stated by the *IHR"*IHR Core Capacity Monitoring Framework," one of the inputs and processes to develop human resources is "a plan or strategy developed for the country to access field epidemiology training."[230] FETP helps accomplish this task. In order to further bolster human resource capacity globally, the FETP should be increased to states that lack a human resources plan or are noncompliant with the IHR. Any expansion of FETP would require an increase in budget to the global public health capacity development program (see Table 17).

[229] WHO, "International Health Regulations (2005) Monitoring Framework: All Capacities Data by Country;" Centers for Disease Control and Prevention, "FETP—About," Protection, last modified March 13, 2014, http://www.cdc.gov/globalhealth/fetp/about.html.

[230] WHO, "IHR Core Capacity Monitoring Framework," 39.

V. CONCLUSION

The United States has numerous programs, agencies, and organizations involved in global health; yet, most of these do not declare IHR compliance as a core mission. While, many critics of the U.S. global health programs argue that the programs stovepipe issues into single categories such as HIV/AIDS; this thesis presents numerous cross-cutting efforts exist that can serve in the interest of both global health programs and IHR compliance. With the majority of WHO member states failing to achieve IHR compliance and the increasing public concern over infectious diseases, due to outbreaks like Ebola, the U.S. global health programs must remain relevant to IHR and global health security.

A report by the Henry J. Kaiser Foundation, *U.S. Global Health Policy: Mapping the United States Government Engagement in Global Public Health*, argues that there has been absence of a coordinated U.S. government global health strategy during a time of accelerated global health spending.[231] Through the current related and possible IHR capacity building efforts, a common operating picture can be realized. Then a strategy can be formulated by matching resources against needs to increase IHR compliance.

This chapter aims to connect the aggregated data to present how the U.S. global health programs can be leveraged to assist partner state with IHR compliance needs. It will also identify organizations not analyzed for this thesis, which may have an increasing role for further research. Lastly, a recommendation will be made on how to increase partner states' IHR compliance through a greater understanding of the current programs and agencies' strengthens and weaknesses.

A. AGGREGATING THE DATA

Aggregating the U.S. global health programs that align with the IHR core capacities identifies which specific core capacities are being supported and by what agency. It also helps identify unsupported core capacities. Decision makers can then

[231] Fischer, Lief, Seegobin, and Kates, *U.S. Global Health Policy*, 17.

formulate strategies to match strengths against needs and identify solutions unsupported core capacity development.

1. Areas of Strength

Across agencies, the core capacities most supported by U.S. efforts appear to be surveillance, laboratory, and response. Interestingly, these three core capacities rank highest in WHO member state compliance (see Table 21). While the efficacy of each program was not analyzed, U.S. efforts do appear to correlate to higher IHR core capacity compliance rates, as compared to regional averages. This inference is made in Table 7 and Table 22. This discovery may also simply denote that U.S. programs and organizations have the same priorities as other states. Even though USAID, DOD, and CDC all have efforts in these three core capacities, DOD and CDC appear to have programs that focus on specific core capacities. DOD focuses on surveillance with the AFHSC-GEIS and laboratory through CBEP, while CDC is primarily engaged with activities related to response core capacities through GDDER.

a. USAID

Analysis of the FY2014, *Users Guide to USAID/Washington Health Programs*, provided in Chapter II and seen in Table 23, reveals that the projects aligned to IHR core capacities are well balanced among risk communication, surveillance, response, preparedness, and laboratory. Over 50 percent of the aligned projects originate from the global health programs aimed at protecting communities from infectious diseases; even though, these projects only account for 12 percent of the USAID global health program budget for FY2014.[232]

[232] "Budget Tracker: Status of U.S. FY14 Funding for Key Global Health Related Accounts," The Henry J. Kaiser Foundation.

	USAID Lines of Effort					
Core Capacity	Saving Lives of Mothers and Children	AIDS-Free Generation	Protecting Communities from Infectious Diseases	Other	Total	Percentage of Total (Rounded to nearest whole number)
National Legislation	1	0	1	1	3	5%
Coordination and NFP Communication	0	0	2	1	3	5%
Surveillance	2	1	5	2	10	17%
Response	3	0	5	1	9	16%
Preparedness	3	1	3	2	9	16%
Human Resources	3	0	1	1	5	9%
Risk Communication	3	0	7	1	11	19%
Laboratory	1	0	6	1	8	14%
Number of Aligned Projects in Each Program Area	16	2	30	10	58	

Table 23. USAID: Aggregated Data of IHR Aligned Projects

Furthermore, the PIOET projects—Identify, Predict, Respond, Prevent, and Deliver—account for 19 percent of the USAID projects relevant to IHR core capacities (see Table 4). This does not include the IHR hazard for zoonotic events. The budget for PIOET in FY2014 was only $47 million, less than two-percent of the global health programs under USAID.[233]

Surprisingly, the global health programs that support Tuberculosis prevention and care account for the greatest proportion of IHR aligned USAID projects (see Table 4). Four USAID Tuberculosis projects account for 28 percent of the total USAID aligned core capacities (see Table 4). This high percentage is largely attributable to the USAID projects executing the WHO-recommended STOP TB Strategy, which entails multiple objectives that align against IHR core capacities. The budget for these programs in FY2014 amounted to $191 million—seven-percent of the USAID global health budget.[234]

b. DOD

The DOD is heavily engaged in surveillance and laboratory-aligned global health activities. AFHSC-GEIS accounts for the disproportionate amount of surveillance

[233] "Budget Tracker: Status of U.S. FY14 Funding for Key Global Health Related Accounts," The Henry J. Kaiser Foundation.

[234] Ibid.

activities, while CBEP carries out majority of those related to laboratory. DHAPP and MHRP support both of these to include response and risk communication; however, these additional capacities are not greatly represented with AFHSC-GEIS and CBEP.

Table 24 presents the aggregated data for the 2012 AFHSC-GEIS achievements that correspond to the IHR core capacities. In 2013, GEIS distributed $45.6 million to support these activities.[235] The budget is very comparable to the USAID PIOET program. True to its name, AFHSC-GEIS most corresponds with surveillance and response core capacities.

AFHSC-GEIS		
Core Capacity	**Total Number of Aligned Achievements**	**Percentage (Rounded to Nearest Whole Number)**
National Legislation	0	0%
Coordination and NFP Communication	8	12%
Surveillance	22	33%
Response	11	17%
Preparedness	8	12%
Human Resources	8	12%
Risk Communication	0	0%
Laboratory	9	14%
Total	**66**	**100%**

Table 24. AFHSC-GEIS: Aggregated Data of IHR Aligned Achievements

DHAPP and MHRP relate to the core capacities for surveillance, response, laboratory, and risk communication, but the programs are constrained to assist HIV/AIDS prevention, care, and treatment of partnered states' service members and their families. As seen in Table 12 and 14, the programs still accomplish a large number of achievements in each capacity.

The CBEP greatly aligns to building laboratory core capacity. With an annual budget of $260 million, CBEP has a great potential to increase laboratory capacity in partnered states.[236] The program has less diversity in terms of other core capacities, with

[235] Armed Forces Health Surveillance Center, *Armed Forces Health Surveillance Center: Health Surveillance, Analysis, and Insight for Action* (Silver Springs, MD: AFHSC, 2013/2014), 22, http://www.afhsc.mil/documents/pubs/documents/AFHSC_AnnualReport_WEB.pdf.

[236] DTRA, *Fiscal Year 2015 Budget Estimates*, CTR-1153.

surveillance being the only other capacity greatly supported. Table 25 displays the aggregated data for CBEP.

CBEP		
Core Capacity	**Total Number of Aligned Projects**	**Percentage**
National Legislation	0	0%
Coordination and NFP Communication	0	0%
Surveillance	7	23.3%
Response	0	0%
Preparedness	0	0%
Human Resources	1	3.3%
Risk Communication	0	0%
Laboratory	22	73.3%
Total	**30**	

Table 25. CBEP: Aggregated Data of IHR Aligned Projects

c. CDC

The CDC's achievements in 2012 most aligned to response, human resources, and laboratory core capacities. This is most likely due to GDDER and FETP. With an annual budget around $45 million, GDDER has assisted in 1,257 outbreak responses since its inception in 2006.[237] Also, FETP produced 2,800 public health work graduates since its inception in 1980; currently the program has an annual budget of less than $10 million.[238] Table 26 presents the aggregated IHR aligned core capacity achievements for the CDC in 2012.

[237] HHS, *FY2015 CDC Justification of Estimates for Appropriation Committees*, 284; Centers for Disease Control and Prevention, "Global Disease Detection Detecting and Containing Health Threats," U.S. Department of Health and Human Services, last modified December 2013, http://www.cdc.gov/globalhealth/pdf/factsheet_globaldiseasedetection.pdf.

[238] HHS, *FY2015 CDC Justification of Estimates for Appropriation Committees*, 284.

CDC	Strategic Goal				
Core Capacity	Health Impact	Health Security	Health Capacity	Total	Percentage of Total
National Legislation	1	0	0	1	1.5%
Coordination and NFP Communication	2	1	4	7	10.8%
Surveillance	4	2	1	7	10.8%
Response	10	9	1	20	30.8%
Preparedness	4	3	0	7	10.8%
Human Resources	2	0	9	11	16.9%
Risk Communication	0	1	0	1	1.5%
Laboratory	1	4	6	11	16.9%
Total	24	20	21	65	

Table 26. CDC: Aggregated Data of IHR Aligned Achievements

2. Areas of Weakness

As evident in Tables 23–26, the analyzed U.S. global health programs and organizations carry out few activities relevant to national legislation, policy, and financing. U.S. global health programs appear to be involved in all other core capacities albeit at varying degrees. Perhaps, more beneficial than understanding U.S. global health program core capacity weaknesses is identification of the global needs.

B. WHAT IS NEEDED?

Previously, Table 21 identified the consolidated compliance rates in 2013, for each IHR core capacity. Human resources, preparedness, and national legislation ranked last respectively; however, these results do not reflect the regional variances in compliance. For example, WHO-European Region had only a 53 percent compliance rate in human resources, while the other seven core capacities had rates of 75 percent or above for 2013. WHO-Africa Region accounted for only a 43 percent compliance rate in national legislation, whereas, laboratory and surveillance were both more than 70 percent. Furthermore, 21.1 percent of WHO member states failed to report 2013 compliance rates; most surprising, 43.3 percent of the WHO-European Region state members failed to report. Table 27 better illustrates both the weaknesses and reporting statuses for each WHO region.

	Lowest Regional Core Capacity		Second Lowest Regional Core Capacity		
WHO-Region	Compliance Average (%)	Core Capacity	Compliance Average (%)	Core Capacity	Reporting Average (%)
European	53.33	Human Resources	75	Preparedness	56.7
Americas	67.09	Preparedness	68.13	Human Resources	91.5
Africa	42.74	Legislation	42.84	Preparedness	70.3
Eastern Mediterranean	62.24	Preparedness	66.67	Risk Communication	100
Western Pacific	71.92	Human Resources	78.19	Preparedness	96.3
South-East Asia	69.09	Human Resources	69.27	Preparedness	100

Table 27. Lowest WHO Regional Core Capacities and Reporting Statuses[239]

C. WHAT IS MISSING?

This thesis examined the activities for three government agencies based on the scale and scope of each's contributions to global health. Further research would examine the other agencies, offices, and institutes involved in global health, which could possibly facilitate global IHR compliance. This includes HHS-Office for Global Affairs and DOS-Office of Global Health Diplomacy.

1. Office of Global Affairs

OGA advances HHS's global strategies and partnerships, while serving as the point of coordination for global health policy, security and initiatives within the U.S. government. With an annual budget of $6.270 million and 22 full-time equivalent (FTE) employees, OGA is relatively small compared to the other U.S. organizations involved in global health. OGA, however, due to its position within the Office of the Secretary, serves as lead within HHS for setting priorities for international engagements. For FY2014, OGA awarded four grants, but these went to largely address health outcomes on the U.S.-Mexico border and don't relate to IHR core capacities.[240]

2. Office of Global Health Diplomacy

Through diplomacy, S/GHD aims "to improve and save lives and foster sustainability through a shared global responsibility."[241] S/GHD primarily focuses on providing diplomatic support in implementing GHI principles and goals, while operating

[239] WHO, "International Health Regulations (2005) Monitoring Framework: All Capacities Data by Country."

[240] HHS, *FY 2015 CDC Justification of Estimates for Appropriation Committees*, 45-47.

[241] U.S. Department of State, "Office of Global Health Diplomacy," Bureaus/Offices Reporting Directly to the Secretary, accessed on November 5, 2014, http://www.state.gov/s/ghd/index.htm.

as an organization within the Office of the Secretary. S/GHD employees 12 staff members divided into two teams: Sustainability and Shared Responsibility and Institutionalizing Health Diplomacy. Sustainability and Shared Responsibility focuses on external engagements such as those with donors, NGOs, and IGOs, while Institutionalizing Health Diplomacy focuses on internal engagements. These internal engagements aim to provide increased knowledge to U.S. diplomats on global health issues and assistance.[242]

D. THE NEXT STEP

This thesis seeks to answer how U.S. global health programs can assist WHO member states through a greater understanding of current assistance by agency. For a coherent strategy, WHO member states must first be able to monitor and report their IHR compliance in each core capacity. This information is critical for identify state needs. Next, decision makers can utilize specific current U.S. global health programs to address WHO member states' deficiencies in surveillance, response, laboratory, and human resources. Finally, there must be a solution to address IHR core capacity gaps in human resources, preparedness, and national legislation—the core capacities most needed.

1. Monitoring and Reporting IHR Compliance

The monitoring and reporting status for IHR compliance varies greatly by region. Europe and Africa both have poor reporting statuses, as compared to the other regions (see Table 27). Monitoring efforts are a critical first step for states recognizing their own needs and requirements. As outlined in Article 54 of IHR, both WHO and state members are required to report to the World Health Assembly on an annual basis regarding compliance and implementation of IHR.[243] Diplomatic efforts should be levied against European states failing to report IHR compliance, as this threatens the legitimacy of the IHR. It is unclear whether GHA or S/GHD should lead this effort. Options in Africa also

[242] Sheila Weir, "A Healthier World: Office Strengthens Global Health Diplomacy," *Slate Magazine*, January 2014, 18–19.

[243] WHO, "IHR Core Capacity Monitoring Framework," 11.

include diplomacy, withholding of future global health aid, and creating new global health projects to monitor compliance.

2. Programs of Excellence/Collaborating Centers

As presented in this thesis, individual U.S. global health programs are adept in particular core capacities. These should become programs of excellence or collaborating centers for IHR compliance. Table 28 lists these programs.

DOD		CDC	
Program	**Core Capacity**	**Program**	**Core Capacity**
AFHSC-GEIS	Surveillance	GDDER	Response
CBEP	Laboratory	FETP	Human Resources

Table 28. Programs of Excellence

This emphasis does not lessen the importance of other global health programs, but instead provides greater clarity to decision makers when trying to address global IHR compliance. It also identifies current programs that could be used to increase specific IHR core capacities, instead of creating parallel programs or organizations.

These programs of excellence should become programs of choice for decision makers seeking to increase IHR compliance in those four core capacities. As an example, in Africa region, the Republic of Congo and Equatorial Guinea both have surveillance rates less than 40 percent. This would provide an opportunity for AFHSC-GEIS to serve a key role for increasing compliance rates in those states.

3. Renewed Focus

Across the spectrum U.S. global health programs are focused in three areas with regards to IHR core capacities: surveillance, response, and laboratory. Analysis, however, indicates the three core capacities most deficient are human resources, preparedness, and national legislation. Decision makers must address this gap between current programs and global needs.

a. Human Resources

Human resources could be bolstered by identify FETP as a program of excellence and expanding its efforts. The budget for FETP remains minute compared to the preponderance of other health programs. As illustrated in Table 22, states partnered with FETP, on average, have higher human resource compliance rates compared to their regional average. Regional FETP can be best leveraged to include smaller states. Many of the deficient WHO member states in the Americas and Western Pacific are small island states that could benefit most from regional programs.

b. *Preparedness*

Aggregated, no specific agency or program analyzed greatly aligns to preparedness; nonetheless, all of the agencies had some activities aligned to preparedness. These activities mostly involved mapping potential health risks and improving the supply chains within partnered states. As seen in Figure 11, preparedness involves numerous elements for compliance.

Appendix 12.1: *Recommended checklist for monitoring progress of IHR core capacity development*

Core capacity 5: Preparedness[1]

Component of core capacity	Country level Indicator	Development of IHR core capacities by capability level			
		<1 Foundational	1 Inputs and processes	2 Outputs and outcomes	3 Additional achievements
Public health emergency preparedness and response	Multi-hazard National Public Health Emergency Preparedness and Response Plan is developed and implemented	Assessment[2] of the ability of existing national structures and resources to meet IHR core capacity requirements (Annex 1A Article 2) A national plan to meet IHR core capacity requirements has been developed (Annex 1A Article 2)	National public health emergency response plans incorporate IHR related hazards and PoE. Procedures, plans or strategy in place to reallocate or mobilize resources from national and sub-national levels to support action at community /primary response level. Surge capacity[3] to respond to public health emergencies of national and international concern is available	The national public health emergency response plan(s) is implemented /tested in actual emergency or simulation exercises and updated as needed. Procedures, plans or strategy to reallocate or mobilize resources from national and sub-national levels to support action at community /primary response level implemented Surge capacity to respond to public health emergencies of national and international concern and tested through an exercise or actual event (e.g. as part of the response plans).	Country experiences and findings on emergency response and in mobilizing surge capacity are documented and shared with the global community. Procedures, plans or strategy to reallocate or mobilize resources from national and sub-national levels to support action at community /primary response level reviewed and updated as needed
Risk and resource management for IHR preparedness	Priority public health risks and resources are mapped and utilized.	A directory of experts in health and other sectors to support a response to the IHR related hazards is available.	A national risk assessment[4] has been conducted to identify 'urgent public health events' and the most likely sources of these events Plan[6] for management and distribution[7] of national stockpiles in place	National resources have been mapped[5] for IHR relevant hazards and priority risks National profiles on **risks** and **resources** developed Stockpiles (critical stock levels) for responding to priority biological, chemical and radiological events and other emergencies are accessible	The national **risk profile** assessed regularly to accommodate emerging threats. The national **resources** for priority risks assessed regularly to accommodate emerging threats. Contributes to international stockpiles

1. Preparedness for development of public health emergency systems including implementation of the IHR.
2. i.e. mapping of local infrastructure, PoE, health facilities, major equipment and supplies, staff, funding sources, experts, equipment, laboratories, institutions, NGOs to assist with community-level work, and transport.
3. Surge capacity: the ability of the health system to expand beyond normal operations to meet a sudden increased demand. Surge capacity encompasses potential patient beds; available space in which patients may be triaged, managed, vaccinated, decontaminated, or simply located; available personnel of all types; necessary medications, supplies and equipment; and even the legal capacity to deliver health care under situations which exceed authorized capacity (Health Care at the Crossroads: Strategies for Creating and Sustaining Community-wide Emergency Preparedness Strategies. JCAHO 2003).
4. The risks are not only due to the source, but also the vulnerabilities and the absence or presence of capacities. This risk assessment should include the mapping of various hazards, disease outbreaks patterns, local disease transmission patterns, contaminated food or water sources, etc. as well as possible hazard sites or facilities which could be the source of a chemical, radiological, nuclear or biological public health emergency of international concern, vulnerable populations.
5. i.e. mapping of local infrastructure, PoE, health facilities, major equipment and supplies, staff, funding sources, experts, equipment, laboratories, institutions, NGOs to assist with community-level work, and transport.
6. Could include management of international resources if needed.
7. This includes the rotation of stocks in respect to their expiry dates, proper storage conditions for various drugs, logistic requirements and distribution to pharmacies and hospitals around the country.

Figure 11. Preparedness: Recommended Checklist for Monitoring Progress of IHR Core Capacity Development[244]

To address these requirements, each U.S. agency must leverage preexisting strengths. USAID has multiple projects involved in improving supply chain management

244 WHO, "IHR Core Capacity Monitoring Framework," 36–37.

and health care logistics. Improving and incorporating these distribution channels and efforts into national response plans would assist compliance efforts. Under its strategic goal for Research, Innovation, and Integration, AFHSC-GEIS has shown an ability to develop products for mapping health risks. Lastly, DOD exercises can be developed to test national public health response plans. The exercises could be planned by DTRA, under the regional COCOM. Furthermore, these can be as simple as tabletop exercises to provide a greater understanding to decision makers of the resources available against known health risks. These resources also include U.S. and international response assistance if deemed necessary.

c. National Legislation, Policy, and Financing

As a core capacity, national legislation has the third lowest compliance rate globally and the lowest in Africa. It is possible that other organizations such as the OGA or S/GHD address the core capacity for IHR national legislation compliance; however, out of the agencies analyzed this core capacity was the most underrepresented. Perhaps the organization most suited to address this core capacity is S/GHD. A key element would be to secure funding for NFP functions in partnered states. This funding could support a national public health institute or center for disease control in partnered states with a tiered approach for partner states to assume financing responsibilities with a goal of sustainability.

Other possibilities for increasing national legislation would be to increase the few existing efforts. Examples from USAID include the Health Policy Project and Health Finance and Governance Project.[245] The cooperative agreement for these efforts could be expanded to facilitate national policies for NFP function and IHR core capacities in partner states.

E. SUMMARY

New agencies and organizations do not have to be created to address global IHR compliance. Instead, by pairing the identified programs of excellence with WHO member

[245] USAID, *Users Guide to USAID*, 24, 143.

states' needs, the U.S. can greatly assist in development for surveillance, laboratory, and response core capacities. For the IHR core capacities most deficient, a pathway forward has been laid out to address the shortcomings in human resources, preparedness, and national legislation. Additionally, most U.S. global health programs appear to have cross-cutting efforts that align with IHR core capacities. Public health officials must leverage these efforts to achieve the greatest value for money spent.

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF REFERENCES

"About the Department of Defense (DOD)." U.S. Department of Defense. Accessed September 4, 2014. http://www.defense.gov/about/#mission.

"AMEDD History." U.S. Army Medical Department. Last modified August 16, 2012. http://ameddregiment.amedd.army.mil/about/ameddhistory.html.

Armed Forces Health Surveillance Center. *Armed Forces Health Surveillance Center: Health Surveillance, Analysis, and Insight for Action.* Silver Springs, MD: AFHSC, 2013/2014. http://www.afhsc.mil/documents/pubs/documents/AFHSC_AnnualReport_WEB.pdf.

Armed Forces Health Surveillance Center. *Global Emerging Infections Surveillance and Response System, Fiscal Year 2010, "Partnering in the Fight against Emerging Infections."* Washington, DC: Department of Defense, 2010.

Berkelman, Ruth, Gail Cassell, Steven Specter, Margaret Hamburg, and Keith Klugman. "The 'Achilles' Heel of Global Efforts to Combat Infectious Diseases." *Clinical Infectious Disease* 42, no. 10 (2006): 1503–1504. doi: 10.1086/504494.

"Budget Tracker: Status of U.S. FY14 Funding for Key Global Health Related Accounts." The Henry J. Kaiser Foundation. Last modified February 28, 2014. http://kaiserfamilyfoundation.files.wordpress.com/2014/03/8045_fy2014.pdf.

Cecchine, Gary and Melinda Moore. *Infectious Disease and National Security: Strategic Information Needs.* Santa Monica, CA: Rand Corporation, 2006.

Center for Disaster and Humanitarian Assistance Medicine. "Cooperative Biological Engagement Program (CBEP)." Uniformed Services University of Health Sciences. Accessed October 2, 2014. http://www.cdham.org/cooperative-biological-engagement-program-pakistan.

Centers for Disease Control and Prevention. "2009–2012 Accomplishments CDC: Saving Lives and Protecting People." U.S. Department of Health and Human Services. Last modified April 26, 2013. http://www.cdc.gov/about/organization/accomplishments.html.

———. *Antibiotic Resistance Threats in the United States, 2013.* Atlanta: Centers for Disease Control and Prevention, 2013. http://www.cdc.gov/drugresistance/threat-report-2013/pdf/ar-threats-2013-508.pdf.

———. "Center for Global Health: Mission Statement," April 19, 2010. http://www.cdc.gov/maso/pdf/CGHfs.pdf.

———. “Center for Global Health: Official Chart.” U.S. Department of Health and Human Services. November 26, 2013. http://www.cdc.gov/maso/pdf/CGH.pdf.

———. “Centers for Disease Control and Prevention: Official Chart.” U.S. Department of Health and Human Services. December 16, 2013. http://www.cdc.gov/maso/pdf/CDC_Official.pdf.

———. “CDC: 60 Years of Excellence,” Accessed October 7, 2014. http://www.cdc.gov/about/pdf/resources/timelinefoldout.pdf.

———. *CDC Global Health Strategy (2012–2015): 2012 Annual Progress Report.* Atlanta: Centers for Disease Control and Prevention, 2014. http://www.cdc.gov/globalhealth/strategy/pdf/2012-gh-strategy-and-annual-report-summary.pdf..

———. “CDC Organization.” U.S. Department of Health and Human Services. Last modified April 14, 2014. http://www.cdc.gov/about/organization/cio.htm.

———. “FETP—About.” Last modified March 13, 2014. http://www.cdc.gov/globalhealth/fetp/about.html.

———. “Global Disease Detection Detecting and Containing Health Threats.” U.S. Department of Health and Human Services. Last modified December 2013. http://www.cdc.gov/globalhealth/pdf/factsheet_globaldiseasedetection.pdf.

———. “Letter from the Director.” Last modified August 15, 2014. http://www.cdc.gov/about/report/2013/director.html.

———. “Where We Work.” Last modified July 1, 2014. http://www.cdc.gov/globalhealth/countries/default.htm.

Defense Threat Reduction Agency. *Fiscal Year 2015 Budget Estimates: Cooperative Threat Reduction Program*. Washington, DC: Government Printing Office, 2014.

Department of Global Capacities Alert and Response. *Activity Report 2012*. Geneva: World Health Organization, 2013. http://www.who.int/ihr/publications/activity_report_2012/en/.

Directorate for Organizational and Management Planning. “Organization of the Department of Defense.” Office of the Secretary of Defense. Last modified March 2012. http://odam.defense.gov/Portals/43/Documents/Functions/Organizational%20Portfolios/Organizations%20and%20Functions%20Guidebook/DoD_Organization_March_2012.pdf.

"DOD HIV/AIDS Prevention Program." Navy Medicine. U.S. Navy. Accessed September 29, 2014. http://www.med.navy.mil/sites/nhrc/dhapp/Pages/default.aspx.

Feldbaum, Harley. *U.S. Global Health and Security Policy*. Washington, DC: Center for Strategic and International Studies, 2009. http://csis.org/files/media/csis/pubs/090420_feldbaum_usglobalhealth.pdf.

Fischer, Julie E., Eric Lief, Vidal Seegobin, and Jen Kates. *U.S. Global Health Policy: Mapping the United States Government Engagement in Global Public Health.* Menlo Park, CA: The Henry J. Kaiser Family Foundation, August 2009.

Fischer, Julie E. and Rebecca Katz. "Moving Forward to 2014: Global IHR (2005) Implementation." *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 11, no. 2 (2013): 153–156. doi:10.1089/bsp.2013.0030.

Force Health Protection & Readiness. "FHP&R Divisions." The Office of the Deputy Assistant Secretary of Defense. Last modified September 8, 2014, http://fhpr.dhhq.health.mil/home.aspx.

Garrett, Laurie. "The Challenge of Global Health," *Foreign Affairs* 86, no. 1 (2007): 14-38. http://www.jstor.org/stable/20032209.

"Global Emerging Infections Surveillance & Response System." Armed Forces Health Surveillance Center. Accessed September 10, 2014. http://www.afhsc.mil/geis.

Himelfarb, Tonya. *50 Years of Global Health: Saving Lives and Building Futures, United States Agency for International Development*. Washington, DC: United States Agency for International Development, 2014. http://www.usaid.gov/sites/default/files/documents/1864/USAID_50-Years-of-Global-Health.pdf.

"HHS Family of Agencies." U.S. Department of Health and Human Services. Accessed October 7, 2014. http://www.hhs.gov/about/foa/index.html.

"Historical Perspectives History of CDC." *Morbidity and Mortality Weekly Report (MMWR)* 45, no. 20 (1996): 526–530. http://www.cdc.gov/mmwr/preview/mmwrhtml/00042732.htm.

InterAction. *Global Health: Investing in Our Future.* Washington, DC: Interaction, 2013. http://www.globalhealth.org/wp-content/uploads/GlobalHealthBriefingBook_FINAL_web.pdf.

"Introduction to the U.S. Army Medical Department." Army Medicine. U.S. Army. Accessed September 9, 2014. http://armymedicine.mil/Pages/Introduction-to-the-US-Army-Medical-Department.aspx.

Katz, Rebecca L., Jose A. Fernandez, and Scott J.N. Mcnabb. "Disease Surveillance, Capacity Building and Implementation of the International Health Regulations (IHR[2005])," *BMC Public Health* 10, suppl. 1 (2010): S1. doi:10.1186/1471-2458-10-S1-S1.

Littman, Robert J. "The Plague of Athens: Epidemiology and Paleopathology." *The Mount Sinai Journal of Medicine* 76, no. 5 (2009): 456–67. doi: 10.1002/msj.20137.

Long, William J. *Pandemic and Peace: Public health Cooperation in Zones of Conflict*. Washington, DC: United States Institute of Peace, 2011.

Michaud, Josh, Kellie Moss, and Jen Kates. *U.S. Global Health Policy: The U.S. Department of Defense and Global Health*. Menlo Park, CA: The Henry Kaiser Family Foundation, 2012. http://kaiserfamilyfoundation.files.wordpress.com/2013/01/8358.pdf.

Moore, Melinda, Gail Fisher, and Clare Stevens. *Toward Integrated DoD Biosurveillance: Assessment and Opportunities*. Santa Monica, CA: Rand Corporation, 2013. http://www.rand.org/content/dam/rand/pubs/research_reports/RR300/RR399/RAND_RR399.pdf.

Moss, Kellie and Josh Michaud. *The U.S. Department of Defense and Global Health: Infectious Disease Efforts*. Menlo Park, CA: The Henry J. Kaiser Family Foundation, 2013. http://kaiserfamilyfoundation.files.wordpress.com/2013/10/8504-the-u-s-department-of-defense-and-global-health-infectious-disease-efforts.pdf.

Nikitin, Mary Beth D. and Amy F. Woolf. *The Evolution of Cooperative Threat Reduction: Issues for Congress*. R43143. Congressional Research Service. 2014. http://fas.org/sgp/crs/nuke/R43143.pdf.

Nossiter, Adam and Alan Cowell. "Ebola Virus Is Outpacing Efforts to Control It, World Health Body Warns." *New York Times*. August 1, 2014. http://www.nytimes.com/2014/08/02/world/africa/african-leaders-and-who-intensify-effort-to-combat-ebola-virus.html?module=Search&mabReward=relbias%3Ar.

Office of the Director, Center for Global Health. *CDC Global Health Strategy: 2012–2015.* Atlanta: Center for Disease Control and Prevention, 2012. http://www.cdc.gov/globalhealth/strategy/pdf/CDC-GlobalHealthStrategy.pdf.

"Office of the Secretary of Defense." U.S. Department of Defense. Accessed September 7, 2014. http://www.defense.gov/osd/.

Office of the Under Secretary of Defense (Comptroller). *Defense Health Program Fiscal Year (FY) 2015 Budget Estimates Defense Health Program.* U.S. Department of Defense. March 2014. http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2015/budget_justification/pdfs/09_Defense_Health_Program/DHP_PB15_Vol_I-II.pdf.

O'Hanlon, Barbara. *USAID's Funding Decisions on Reproductive Health and Family Planning*. Washington, DC: O'Hanlon Health Consulting LLC., April 2009. http://www.hewlett.org/uploads/files/USAID_FPRH_Funding_Decisions_-_OHanlon_April_2009.pdf.

Otto, Jean L., Jean L. Otto,1 Priya Baliga, Jose L. Sanchez, Matthew C. Johns, Gregory C. Gray, John Grieco, Andres G. Lescano, Jerry L. Mothershead, Eric J. Wagar, and David L. Blazes. "Training Initiatives within the AFHSC-Global Emerging Infections Surveillance and Response System: Support for IHR (2005)" *BMC Public Health* 11, suppl. 2 (2011): S5. doi:10.1186/1471-2458-11-S2-S5.

Peake, James B., J. Stephen Morrison, Michele M. Ledgerwood, and Seth E. Gannon. *The Defense Department's Enduring Contributions to Global Health: The Future of the U.S. Army and Navy Overseas Medical Research Laboratories*. Washington, DC: Center for Strategic Studies, 2011.

"Programs." Defense Security Cooperation Agency. Accessed September 8, 2014, http://www.dsca.mil/about-us/programs-pgm.

Regional Committee for Africa, Resolution. "Implementation of International Health Regulations (2005) in the African Region: Document AFR/RC62/12." World Health Organization. November 21, 2012. http://www.afro.who.int/index.php?option=com_docman&task=doc_download&gid=8188&Itemid=2593.

Russell, Keven L., Jennifer Rubenstein, Ronald L Burke, Kelly G. Vest, Matthew C. Johns, Jose L. Sanchez, William Meyer, Mark M. Fukuda, and David L. Blazes. "The Global Emerging Infection Surveillance and Response System (GEIS), a U.S. Government Tool for Improved Global Biosurveillance: A Review of 2009." *BMC Public Health* 11, suppl. 2 (2011): S2. doi:10.1186/1471-2458-11-S2-S2.

Salaam-Blyther, Tiaji. *U.S. Global Health Assistance: Background and Issues for the 113th Congress.* R43115. Washington, DC: Congressional Research Service, 2013. http://fas.org/sgp/crs/row/R43115.pdf.

Sanchez, Jose L., Matthew C. Johns, Ronald L. Burke, Kelly G. Vest, Mark M. Fukuda, In-Kyu Yoon, Chanthap Lon, Miguel Quintana, David C. Schnabel, Guillermo Pimentel, Moustafa Mansour, Steven Tobias, Joel M. Montgomery, Gregory C. Gray, Karen Saylors, Lucy M. Ndip, Sheri Lewis, Patrick J. Blair, Paul A. Sjoberg, Robert A. Kuschner, Kevin L. Russell, and David L. Blazes. "Capacity-

Building Efforts by the AFHSC-GEIS Program." *BMC Public Health* 11, suppl. 2 (2011): S4. doi:10.1186/1471-2458-11-S2-S4.

Serafino, Nina M. *The Department of Defense Role in Foreign Assistance: Background, Major Issues, and Options for Congress*. RL34639. Congressional Research Service. 2008. http://www.fas.org/sgp/crs/natsec/RL34639.pdf.

Smallman-Raynor, Matthew and Andrew Cliff. *War Epidemics: An Historical Geography of Infectious Diseases in Military Conflict and Civilian Strife, 1850-2000,* Oxford: Oxford University Press, 2004.

The Joint Staff. "About the Joint Chiefs of Staff." The Joint Chiefs of Staff. Accessed September 9, 2014. http://www.jcs.mil/About.aspx.

"The U.S. Army Medical Department Regiment History." U.S. Army Medical Department. Last modified March 5, 2013. http://ameddregiment.amedd.army.mil/about/history.html.

"The U.S. Government & Global Emerging Infectious Disease Preparedness and Response." The Henry J. Kaiser Family Foundation. Last modified October 22, 2014,. http://kff.org/global-health-policy/fact-sheet/the-u-s-government-global-emerging-infectious-disease-preparedness-and-response/.

United States Agency for International Development. *USAID Global Health Strategic Framework: Better Health for Development, FY2012–FY2016.* Washington, DC: United States Agency for International Development, 2012. http://www.usaid.gov/sites/default/files/documents/1864/gh_framework2012.pdf.

———. *Users Guide to USAID/Washington Health Programs, FY2014*. Washington, DC: United States Agency for International Development, 2014. http://transition.usaid.gov/our_work/global_health/home/Resources/users_guide.html.

"U.S. Agency for International Development." Foreign Assistance by Agency. Last modified June 30, 2014. http://www.foreignassistance.gov/web/AgencyLanding.aspx.

U.S. Army Medical Research Institute of Infectious Diseases. "About USAMRIID." U.S. Army Medical Department. Accessed September 10, 2014. http://www.usamriid.army.mil/aboutpage.cfm.

U.S. Bureau of Economic Analysis. "Table 1.1.5. Gross Domestic Product." U.S. Department of Commerce. Accessed July 24, 2014. http://bea.gov/iTable/iTable.cfm?ReqID=9&step=1#reqid=9&step=1&isuri=1.

U.S. Department of Defense. *Doctrine for the Armed Forces of the United States*. Joint Publication 1. Washington, DC: Joint Chiefs of Staff, 2013.

———. *DOD HIV/AIDS Prevention Program (DHAPP), Annual Report 2012.* Washington, DC: Department of Defense, 2012. http://www.med.navy.mil/sites/nhrc/dhapp/countryreports/Documents/yearly12/FullReport12.pdf.

———. *Department of Defense Directive: Assistant Secretary of Defense for Health Affairs (ASD(HA)).* Number 5136.01. Washington, DC: Department of Defense, 2013.

———. *Department of Defense Instruction: Military Health Support to Stability Operations*. Number 6000.16. Washington, DC: Department of Defense, 2010.

———. *Department of Defense Directive: Defense Security Cooperation Agency (DSCA)*. Number 5105.65. Washington, DC: Department of Defense, 2012.

———. *Department of Defense Instruction: National Center for Medical Intelligence (NCMI).* Number 6420.01.Washington, DC: Department of Defense, 2009.

U.S. Department of Health and Human Services. *FY 2015 CDC Justification of Estimates for Appropriation Committees*. http://www.cdc.gov/fmo/topic/Budget%20Information/index.html.

———. *The Global Health Strategy of the U.S. Department of Health and Human Service.* Washington, DC: Office of Global Affairs, 2011. http://www.globalhealth.gov/pdfs/Global%20Health%20Strategy.pdf.

———. "US Commitment to the Global Health Security Agenda: Toward a World Safe and Secure From Infectious Disease Threats." The Global Health Security Agenda. Accessed June 9, 2014. http://www.globalhealth.gov/global-health-topics/global-health-security/ghsagenda.html.

U.S. Department of State. *Executive Budget Summary: Function 150 and Other International Programs, Fiscal Year 2014*. Washington, DC: Government Printing Office, 2013. http://www.usaid.gov/sites/default/files/documents/1868/207305.pdf.

———. "Office of Global Health Diplomacy." Bureaus/Offices Reporting Directly to the Secretary. Accessed November 5, 2014. http://www.state.gov/s/ghd/index.htm.

———. *The U.S. Global Health Initiative: Saving Lives and Promoting Security*. May 30, 2012. http://www.state.gov/documents/organization/191821.pdf.

U.S. Government Accountability Office. *World Health Organization: Reform Agenda Developed, but U.S. Actions to Monitor Progress Could be Enhanced*. GAO-12-722. 2012. http://www.gao.gov/products/GAO-12-722.

U.S. Military HIV Research Program. "About MHRP." Walter Reed Army Institute of Research. Accessed October 2, 2014. http://www.hivresearch.org/about.php.

———. *Makerere University Walter-Reed Project: Country Fact Sheet*. Silver Spring, MD: Walter Reed Army Institute of Research, 2014. http://www.hivresearch.org/media/pnc/1/media.761.pdf.

———. *U.S. Military HIV Research Program in Thailand: Country Fact Sheet*. Silver Spring, MD: Walter Reed Army Institute of Research, 2014. http://www.hivresearch.org/media/pnc/9/media.859.pdf.

———. *U.S. Military HIV Research Program: Strategic Plan, June 28, 2010.* Silver Spring, MD: Walter Reed Army Institute of Research, 2010.

———. *Walter-Reed Project-Kenya: Country Fact Sheet*. Silver Spring, MD: Walter Reed Army Institute of Research, 2014. http://www.hivresearch.org/media/pnc/8/media.758.pdf.

———. *Walter-Reed Project-Nigeria: Country Fact Sheet*. Silver Spring, MD: Walter Reed Army Institute of Research, 2014. http://www.hivresearch.org/media/pnc/8/media.828.pdf.

———. *Walter-Reed Project-Tanzania: Country Fact Sheet*. Silver Spring, MD: Walter Reed Army Institute of Research, 2014. http://www.hivresearch.org/media/pnc/6/media.856.pdf.

U.S. National Intelligence Council. *National Intelligence Estimate: The Global Infectious Disease Threat and Its Implications for the United States.* NIE 99-17D. Washington, DC: U.S. National Intelligence Council, 2000. http://www.dni.gov/files/documents/infectiousdiseases_2000.pdf.

———. *Strategic Implications of Global Health.* ICA 2008-10D. Washington, DC: U.S. National Intelligence Council, 2008. http://www.state.gov/documents/organization/113592.pdf.

Walter Reed Army Institute of Research. "Subordinate Commands." U.S. Army Medical Research and Materiel Command. Last modified September 10, 2014. http://wrair-www.army.mil/WRAIRSubordinateCommands.aspx.

Weir, Sheila. "A Healthier World: Office Strengthens Global Health Diplomacy" *Slate Magazine.* January 2014.

White House. *National Security Strategy*. Washington DC: Government Printing Office, May 2010. http://nssarchive.us/NSSR/2010.pdf.

———. *Presidential Decision Directive NSTC-7: Emerging Infectious Diseases*. 1996. http://fas.org/irp/offdocs/pdd/index.html.

———. *Presidential Policy Directive-6: U.S. Global Development Policy.* 2010. https://fas.org/irp/offdocs/ppd/ppd-6.pdf.

"Who We Are." Defense Threat Reduction Agency & USSTRATCOM Center for Combating WMD & Standing Joint Force Headquarters—Elimination. Accessed September 3, 2014. http://www.dtra.mil/about/WhoWeAre.aspx.

Wilson, Kumanan, John S. Brownstein, and David P. Fidler. "Strengthening the International Health Regulations: Lessons from the H1N1 Pandemic." *Health and Policy Planning* 25, no. 6 (2010): 505-509. doi:10.1093/heapol/czq026.

World Health Organization. "About IHR." Alert, Response, and Capacity Building Under the International Health Regulations (IHR). Accessed August 19, 2014, http://www.who.int/ihr/about/en/.

———. "Ebola Virus Disease." Fact Sheet N°103. Media Centre. Last modified April 2014. http://www.who.int/mediacentre/factsheets/fs103/en/.

———. "International Health Regulations (2005) Monitoring Framework: All Capacities Data by Country." Global Health Observatory Data Repository. Accessed August 3, 2014. http://apps.who.int/gho/data/node.main.IHR00ALLN?lang=en.

———. "IHR Core Capacity Monitoring Framework: Checklist and Indicators for Monitoring Progress in the Development of IHR Core Capacities in States Parties." *International Health Regulations (2005).* Geneva: WHO Press, April 2013. http://apps.who.int/iris/bitstream/10665/84933/1/WHO_HSE_GCR_2013.2_eng.pdf.

———. "IHR Procedures Concerning Public Health Emergencies of International Concern (PHEIC)." Alert, Response, and Capacity Building Under the International Health Regulations (IHR). Accessed August 18, 2014, http://www.who.int/ihr/procedures/pheic/en/.

———. *International Health Regulations (2005).* 2nd ed. Geneva: WHO Press, 2008. http://whqlibdoc.who.int/publications/2008/9789241580410_eng.pdf?ua=1.

———. *Programme Budget 2002–2003: Performance Assessment Report*. PBPA/2003–2003 Coor. 1. April 4, 2005. http://apps.who.int/gb/archive/pdf_files/PBPA_0203/PBPA2002-2003_Corr1-en.pdf.

———. "United States of America." Global Alert and Response (GAR). Accessed May 27, 2014. http://www.who.int/csr/don/archive/country/usa/en/.

———. *Summary of 2011 States Parties Report on IHR Core Capacity Implementation*. Geneva: WHO Press, 2012. http://www.who.int/ihr/publications/WHO_HSE_GCR_2012.10_eng.pdf.

———. "WHO Statement on the Meeting of the International Health Regulations Emergency Committee Regarding the 2014 Ebola Outbreak in West Africa." August 8, 2014. http://www.who.int/mediacentre/news/statements/2014/ebola-20140808/en/.

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
   Ft. Belvoir, Virginia

2. Dudley Knox Library
   Naval Postgraduate School
   Monterey, California